

EN

# Sieger Drain-Jet

[www.sieger-machinery.com](http://www.sieger-machinery.com)

## USER MANUAL INCLUDING SPARE PARTS LISTS



***Sieger Drain-Jet S***  
***Sieger Drain-Jet HS***  
***Sieger Drain-Jet WR***



READ THIS MANUAL BEFORE USING THIS MACHINE

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#### *Liability*

This publication has been prepared with the greatest possible care. Nevertheless, it may not be entirely accurate. Sieger accepts no liability for any errors in this publication or the possible consequences thereof.

#### *Language*

- Original manual.
- Translation of the original manual.

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## PREFACE

Dear customer, Congratulations on choosing a Sieger Drain-Jet drain cleaner.

Thanks to this quality machine from Sieger, you can look forward to years of low maintenance drain pipe cleaning. To ensure trouble-free operation the Drain-Jet is standard equipped with four driven rollers for driving the flushing hose. Moreover, the combination of a powerful high pressure pump and the standard 500 metre hose provide tremendous cleaning capacity. The hydraulic arm, which is a standard feature, makes the Drain-Jet drain cleaner ergonomic in use. The simple control enables you to work safely and efficiently.

For your safety it is important that the machine is operated maintained correctly. Read this manual before using the machine. Follow the instructions to avoid injury and property damage. Do not hesitate to contact Sieger if you have questions.

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## 1 INTRODUCTION

### Intended use

The drain cleaner is intended for cleaning drain pipes. Do not use the drain cleaner for any other purpose.

### Intended audience

Only adequately trained people who have read and understood this manual may use and maintain the drain cleaner.

### About this manual

This manual pertains to the operation and maintenance of the Sieger Drain-Jet drain cleaner.

This document is applicable to the following models:

Sieger Drain-Jet S (112202AS600)  
Sieger Drain-Jet HS (112202AS700)  
Sieger Drain-Jet WR (112202AS800)

### Supplied documentation

The drain cleaner is accompanied by the following documentation:

- User manual (including spare parts lists)
- Manual for the cardan shaft

### Availability

The user manual must always be present in the cab. If the manual is lost, you can request a new copy from Sieger or download it from [www.sieger-machinery.com](http://www.sieger-machinery.com).

Conventions used in this document

- This symbol indicates a summary of information.
1. Preceding numbers indicate the order in which steps must be performed.
  - [1] Numbers inside square brackets are references to parts in an illustration.

### Left, right, front and rear

The designations ‘left’, ‘right’, ‘front’, and ‘rear’ are to be interpreted from the perspective of a person sitting in the driver’s seat, facing the forward driving direction.

## Customer service

If you have questions about the Sieger Drain-Jet that are not answered in this user manual, please do not hesitate to contact Sieger.

For other instructions you can naturally always consult our website  
[www.sieger-machinery.com](http://www.sieger-machinery.com).

## Warranty

You are, of course, entitled to warranty coverage if a defect develops despite correct operation and completion of the prescribed maintenance. The warranty does not cover the following:

- Normal wear
- Failure to heed instructions on the drain cleaner
- Ignoring the instructions in this manual
- Inadequate maintenance
- The use of non-OEM parts
- Abnormal external influences
- A modification not authorized by Sieger

Sieger honours the warranty conditions laid down in the METAALUNIE terms and conditions. A summary of the Sieger general terms and conditions is available online, on our website.

## Machine identification

Fill in the identification data for the machine. These data can be found on the type plate. The type plate is located on the tube beside the attachment point of the upper link of the three-point linkage. Also fill in the delivery date.



|               |                      |
|---------------|----------------------|
| Type          | <input type="text"/> |
| Serial no.    | <input type="text"/> |
| Year          | <input type="text"/> |
| Weight kg     | <input type="text"/> |
| Delivery date | <input type="text"/> |

You can also register the machine online at [www.sieger-machinery.com](http://www.sieger-machinery.com). By registering your product, you make it possible for us to optimize your experience. Registration is beneficial to you in a number of ways, one of which is that we will keep you up to date on the latest developments concerning technical improvements and use of the Drain-Jet drain cleaner. You will also receive news about the latest developments at Sieger.

**EC declaration of conformity (only valid for Europe)**

Manufacturer: Modulen & Engineering Menzing B.V.  
Address: Handelsstraat 36b  
Postal code: 7482 GW

**Product identification:**

Description of the product: Drain cleaner  
Type or model: Drain-Jet S  
Drain-Jet HS  
Drain-Jet WR  
Serial number: Pxxxxxx/xx

**Meets the requirements:**

EU Guideline: 2006/42/EC relating to machinery

Haaksbergen, February 2015



E. Jansen  
Director  
Modulen & Engineering Menzing B.V.

## 2 SAFETY

### Introduction

Read this manual before using the machine. Follow the instructions to avoid injury and property damage. Do not hesitate to contact Sieger if you have questions.

**REMAIN ALERT! YOUR SAFETY AND THE SAFETY OF OTHERS DEPENDS ON IT!**

### Symbols in this manual

The following symbols are used in this manual:



#### WARNING

Indicates a risky situation which, if not avoided, may result in severe bodily injury or death.

#### ATTENTION

Indicates a risky situation which, if not avoided, may result in property damage.



This symbol indicates additional information and tips. This symbol is not used to indicate a risky situation.

## Safety warnings (stickers)

Various symbols can be found on the drain cleaner, the purpose of which is to alert you to a potentially hazardous situation, remind you to use personal protective equipment or refer you to a prescribed operation explained in this manual.



### Safety glasses sticker

Sticker indicating that safety glasses must be worn.



### User manual sticker

Refers to a prescribed operation.



### Rotating parts sticker

Warning for mechanical danger/danger of being pulled in by moving parts.



### Trapping sticker

Warning for mechanical danger/danger of crushing by moving parts.

## 3 GENERAL DESCRIPTION

### Introduction

The drain cleaner consists of the following parts:

- Frame
- Cardan shaft
- Hydraulic system
- Reel
- Side arm with hose drive
- Distance indicator
- Guide arm
- Diaphragm pump
- Pressure regulator
- Filters
- Flexible hose section
- Cleaner nozzle

### Frame

The frame has attachment points for transport with a forklift. The frame is designed for attachment to your tractor's three-point linkage.

### Cardan shaft

The drain cleaner is delivered complete with a cardan shaft. This may need to be shortened. The cardan shaft is driven by the tractor PTO shaft.

### Hydraulic system

The hydraulic system is connected to the tractor's double-acting valve or a single-acting valve with pressure-free return. The machine is operated through use of the 4-way valve block. The wind-out and wind-up speed is controlled by the speed control valve next to the valve block.

### Reel

Due to its large diameter the reel can wind up a flushing hose with a maximum length of 500 metres. The drain cleaner is equipped standard with a flushing hose of this length.

### Side arm with hose drive

The side arm is operated with hydraulic cylinders to position the guide arm in front of the drain pipe. The hose drive consists of four driven rubber rollers.

### Distance indicator

The distance indicator is located behind the drive rollers. The indicator measures the rolled out hose length and can indicate the location of the blockage.

### Guide arm

For road transport the guide arm must be folded in and secured, in accordance with the instructions in this manual.

**ATTENTION**

- Before the arm can be retracted, it is necessary to ensure that the flushing hose is not located in the folding part of the arm.
- Position the drain-shaft arch before the machine is folded in (otherwise the drain-shaft arch will contact the reel).

**Diaphragm pump**

The water pump is a suction diaphragm pump, driven by the tractor PTO. The recommended pump speed is 350 to 370 rpm. The maximum allowable speed of the pump is 540 rpm.

**Pressure regulator**

You can adjust the water pressure with the pressure regulator. A handle on the pressure regulator enables you to depressurize the pump, which may be desirable, for example, when positioning the guide arm in line with the drain pipe. The optimum operating pressure is 30 - 35 bar.

| Pump pressure (bar) | Cleaner nozzle pressure (bar) | L/min at 500 metres |
|---------------------|-------------------------------|---------------------|
| 20                  | 3.8                           | 45                  |
| 25                  | 6.1                           | 50                  |
| <b>30</b>           | <b>6.7</b>                    | <b>55.5</b>         |
| <b>35</b>           | <b>9.9</b>                    | <b>58.3</b>         |
| 40                  | 11                            | 65                  |
| 50                  | 12.8                          | 68.7                |

The return hose for the pressure regulator is connected to the top of the guide arm. The water 'lubricates' and cleans the flushing hose.

**Filters**

The suction hose is fitted with a suction strainer. The suction strainer is located upstream of the diaphragm pump.

**Flexible hose section**

The flexible hose section between the flushing hose and cleaner nozzle ensures that the cleaner nozzle remains in the middle of the drain pipe.

**Cleaner nozzle**

The standard cleaner nozzle has 13 holes: 1 forward-pointing hole and 12 backward-pointing holes at a 15° angle.

## 4 COMMISSIONING

### Introduction

- Check the drain cleaner for possible transport damage at the time of delivery. Report transport damage to the carrier or Sieger immediately.

### Cardan shaft

It may be necessary to shorten the cardan shaft (the inner and outer telescoping shaft sections and both protective sleeves). See the instructions in the manual supplied with the cardan shaft.

#### ATTENTION

Do not allow the pump to run longer than two minutes without a supply of water.

### Commissioning after winter storage

- Diaphragm pump: drain the antifreeze (if applicable). Dispose of the antifreeze in accordance with national regulations.

## 5 OPERATION

### Introduction

The chapter provides information about operating the drain cleaner.



#### Safety

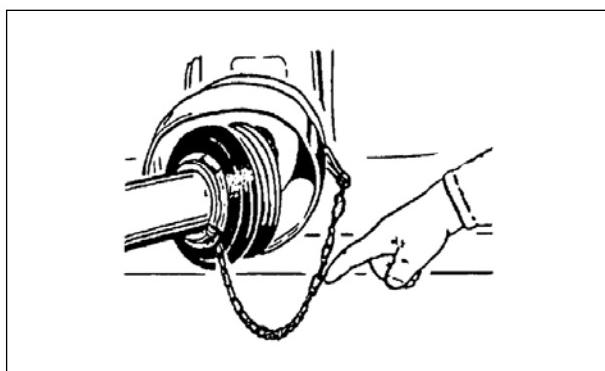
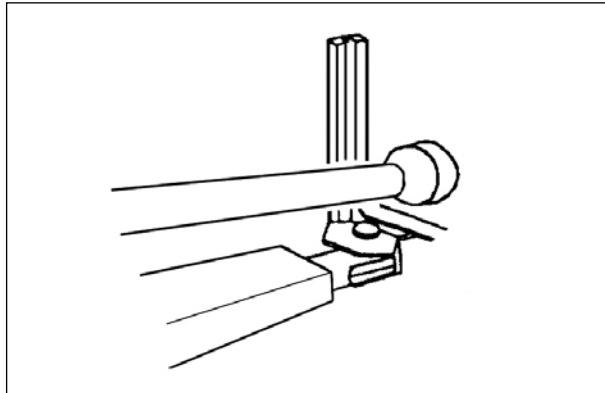
- Never leave the tractor engine running in an enclosed area (not even if the doors and windows are open) due to the risk of carbon monoxide poisoning!
- The guide arm must never be used as a hoist.
- Always wear eye protection (safety glasses). Due to the high pressure, small, hard objects can be ejected at high speed.
- Make the machine roadworthy prior to transport on public roads.
- Check the lighting. Have an assistant help you check the brake lights.
- Adjust the tractor mirrors if necessary.



There is a danger of crushing and bodily injury in the machine's guide arm zone. Never stand under the guide arm when it is raised.

## Connecting to the tractor

1. Ensure that the work area is adequately lighted.
2. Hitch the drain cleaner to the tractor.
3. Disengage the PTO shaft and shut down the engine on the tractor, and take the ignition key with you.
4. Fit the cardan shaft (adapted to length if necessary) to the tractor PTO shaft.
5. Secure the tractor end of the protective sleeve to the tractor with the attachment chain to prevent it from rotating with the shaft.
6. Ensure that the protective sleeve on the drain cleaner side is secured against rotation with the other attachment chain.
7. Attach the hydraulic hoses; the connection for the pump side is marked in red.
8. Connect the 7-pole connector for the brake lights and direction indicators to the tractor socket.
9. WR model: connect the plug for the electrical circuit (black - / white +).


**ATTENTION**

The maximum permissible speed of the tractor PTO shaft is 540 rpm.  
Do not exceed this speed.

**ATTENTION**

Do not use the chains to hang up the cardan shaft.



Do not stand on the cardan shaft.

The cardan shaft can become very hot during use. Do not touch the cardan shaft during or soon after use.



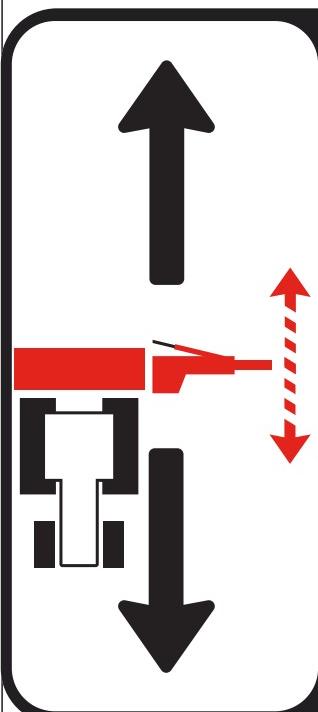
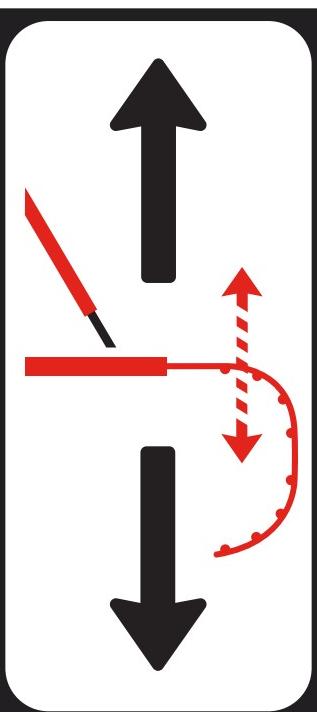
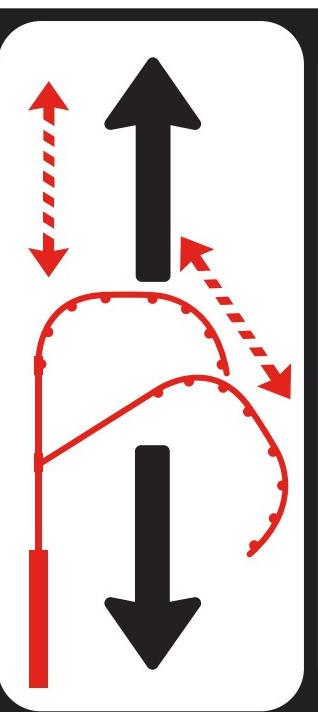
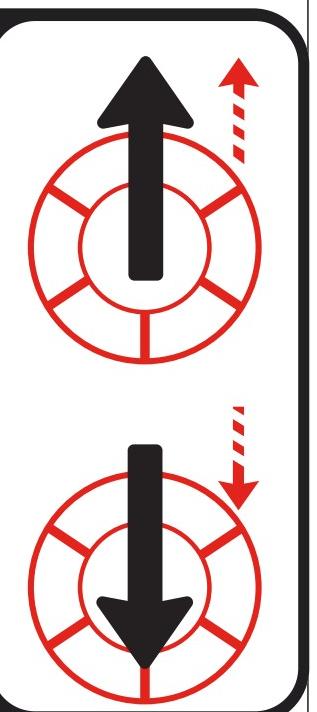
- Rotating parts (cardan shaft).
- Only use the cardan shaft with the protective sleeve and protective guards in place and in good condition.
- Maintain a safe distance from the rotating cardan shaft.
- Prior to maintenance on the cardan shaft:
- Disengage the PTO shaft and shut down the engine on the tractor.
- Remove the ignition key from the ignition lock cylinder.

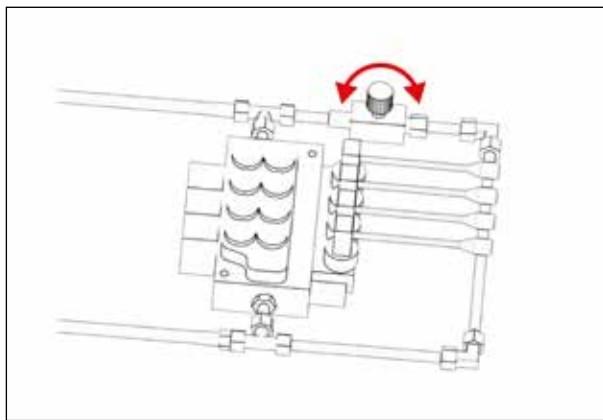
## Hydraulic system operation

The machine is operated through use of the 4-way valve block. The wind-out and wind-up speed is controlled with the speed control valve next to the valve block.

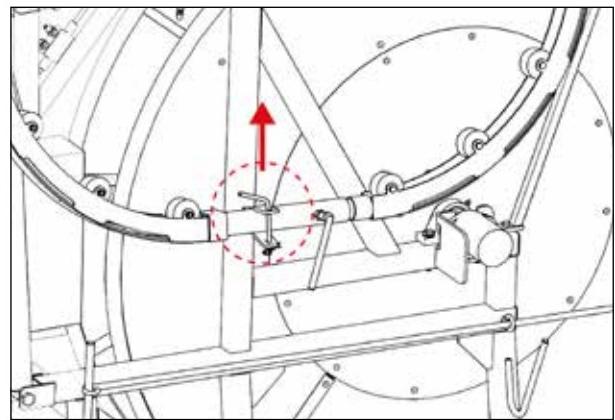
The sticker on the control panel graphically indicates the various functions of the levers.

Note: Lever 4 is only present on the HS and WR model.

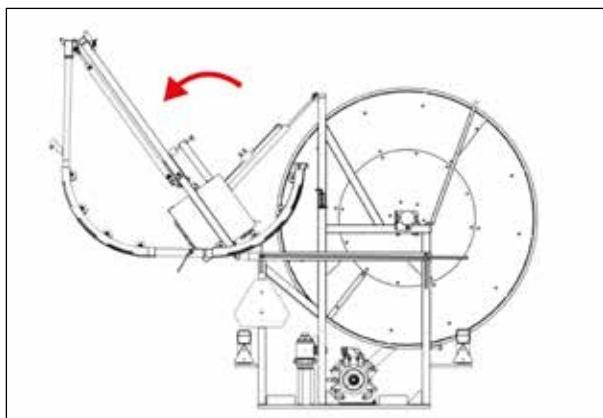
| Lever 4<br>(HS/WR model)   | Lever 3  | Lever 2   | Lever 1  |
|--|--|---|--|
| Swing backwards  | Raise arm  | Extend arm<br>Fold arm out  | Reel out   |
|  |  |  |  |
| Swing forwards   | Lower arm  | Retract arm<br>Fold arm in  | Reel in  |

**Machine operation: winding out (feeding in)**

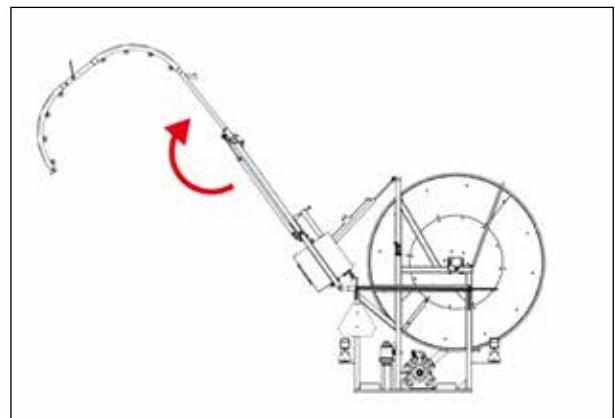
- 1 Pressurize the hydraulic system.  
The speed can be adjusted with the speed control valve.



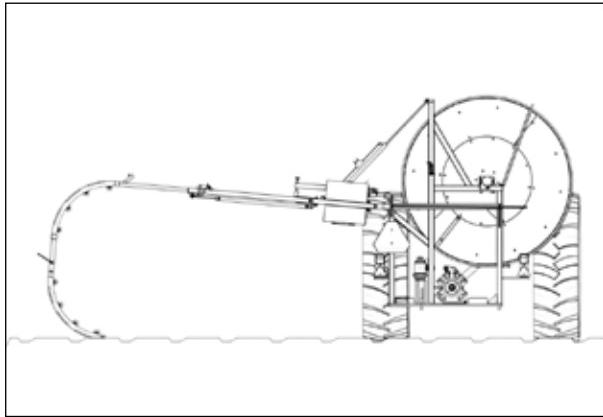
- 2 Release the arm from the road transport retainer.



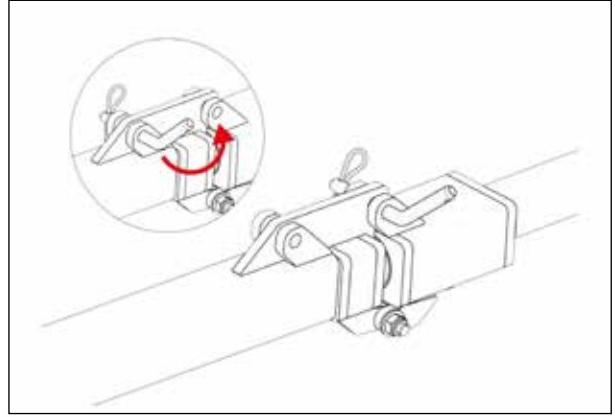
- 3 Lower the arm ±45 degrees (lever 3).



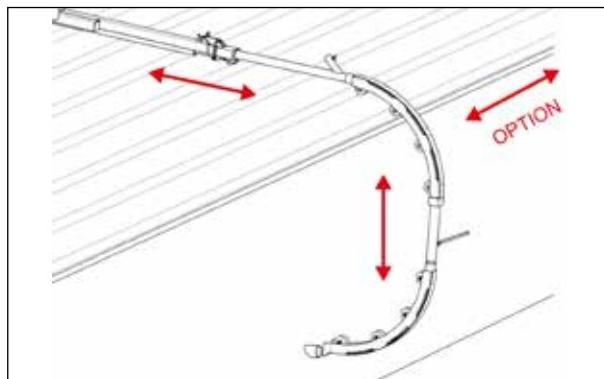
- 4 Fold out the arm as far as possible (lever 2).



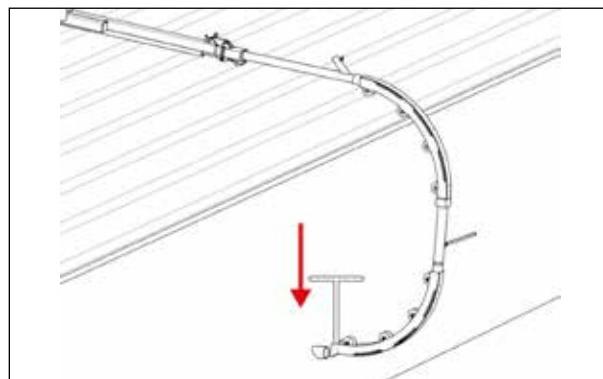
- 5 Lower the arm to the ground (lever 3).



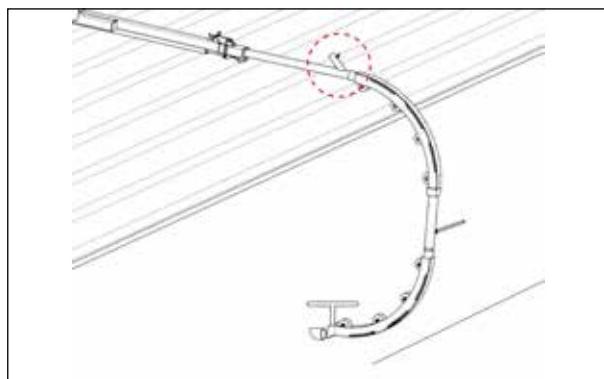
- 6 From transport position to operating position  
If necessary, retract cylinder ±1 cm with lever 2.



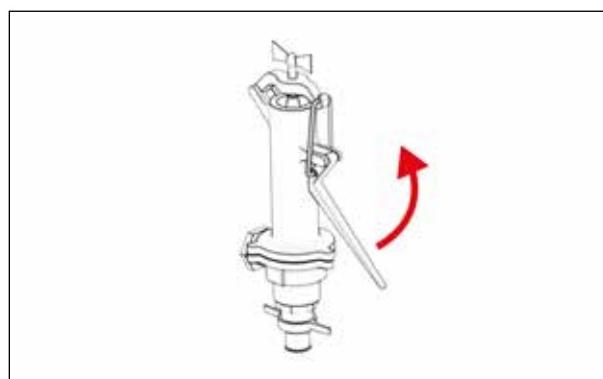
- 7 Drive the tractor to the ditch or pit.  
Position the drain-shaft arch in front of the drain.



- 8 Secure the drain-shaft arch with the ground anchor.

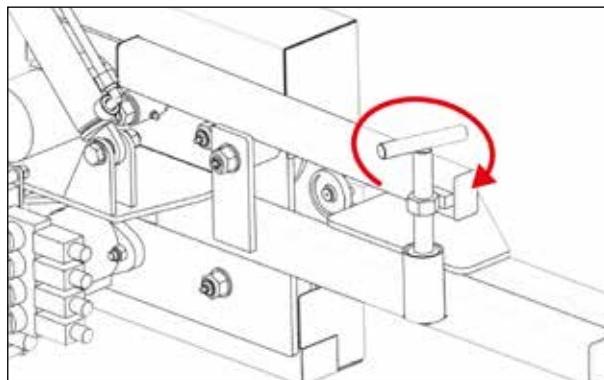


- 9 Lay/place the suction hose in the pit or water tank. Connect the return hose for the pressure regulator to the top of the guide arm. The water 'lubricates' and cleans the flushing hose.

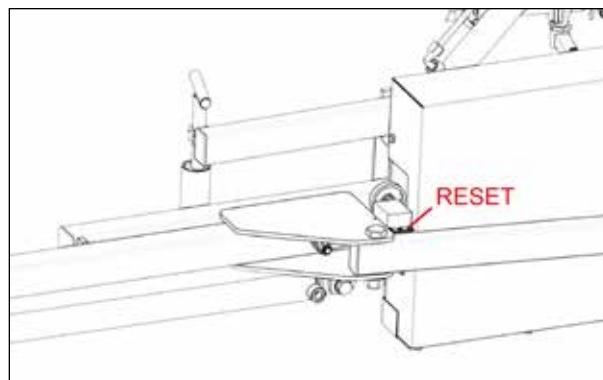


- 10 Disengage the pressure regulator. Engage the PTO.

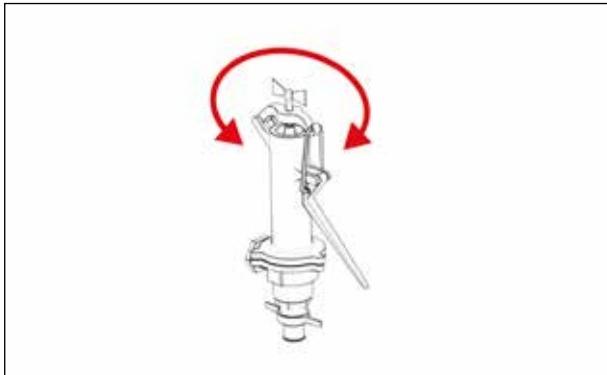
**Recommended speed for the pump is 350 – 370 rpm.** Use the lowest possible speed necessary to achieve the operating pressure of 30-35 bar.



- 11 Run the reel slowly to roll out the hose; tighten the tension roller until the drive no longer slips.



- 12 Reel out the hose carefully until the nozzle is ±3 centimetres from the drain (lever 1). Set the distance indicator to 0.



13 Engage the pressure regulator and adjust it to 35 bar.

14 Reel out the hose at  $\pm 30$  metres per minute. Retract the hose  $\pm 15$  metres if the hose gets stuck or the drive wheels slip. Then continue reeling out, assuming that the end has not yet been reached.

15 If the cleaner nozzle gets stuck approximately 50 metres into the drain pipe due to heavy deposits: retract the hose completely to flush the contamination out of the drain pipe. Repeat to clean the next section of drain pipe.



Ensure that no one is within the working zone around the machine when the machine is in operation.

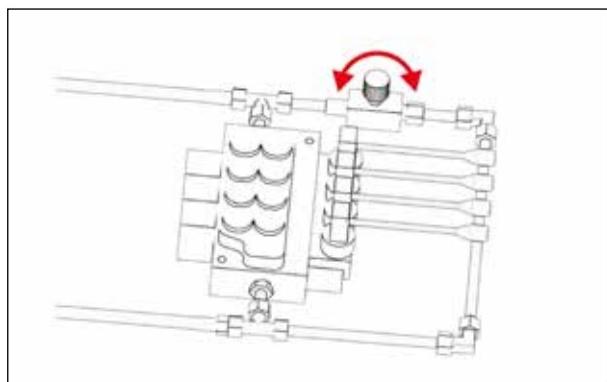
- Only remove the locking pin from the pivot point if the arm is resting on the ground.
- Do not place your hands between the drive wheels.

**ATTENTION**

- Prevent the polyethylene hose from kinking by positioning the drain-shaft arch no more than 5 to 10 centimetres from the drain.
- Raise the drain cleaner until the angle of the PTO shaft is approximately 10 degrees (maximum 12 degrees).
- Stop immediately when a blockage is reached.
- Stop immediately at the end of the drain pipe.
- Never allow the flushing hose to stand still in the drain pipe for more than ten minutes.
- Retract the hose at a lower speed.

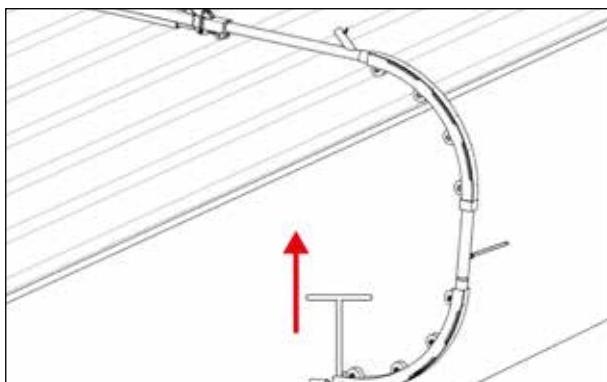
**ATTENTION****When the cleaner nozzle is in the drain:**

- Do not switch off the pump!
- Keep the hose under pressure!
- Never leave the machine unattended!

**Machine operation: winding up**

- 1 Roll up the hose once the end of the drain is reached. Reduce the speed from 20 to 25 metres per minute by adjusting the throttling valve. Watch the distance indicator carefully. Stop the reel once the hose is out of the drain.

- 3 Disengage the PTO shaft.



- 5 Remove ground anchor.

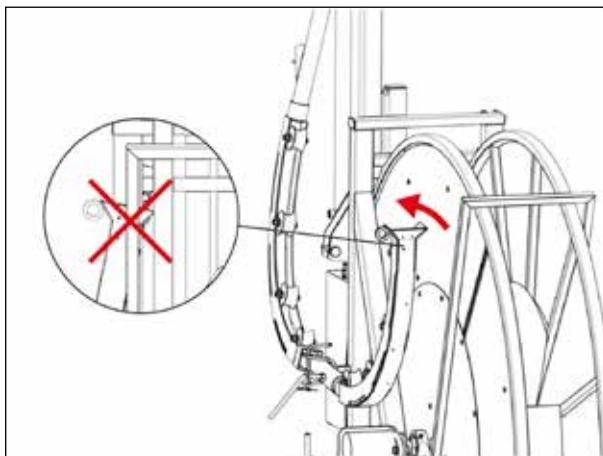
- 6 Raise arm slightly and drive to the next drain.



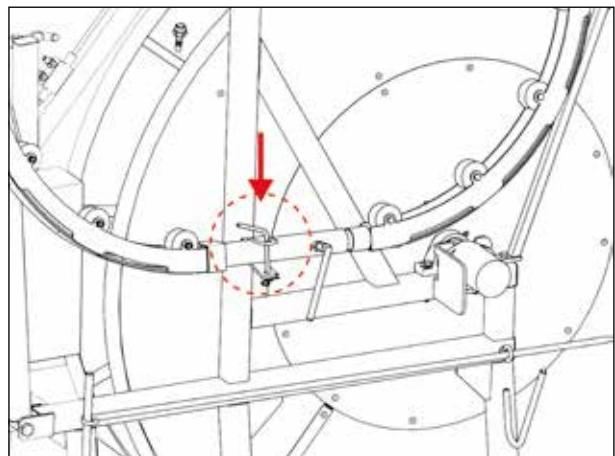
- 2 Disengage the pressure regulator.

- 4 Remove suction hose from the water.

- 7 Remove suction hose from the water.

**Folding in and transport**

- 1 Turn the drain-shaft arch slightly before folding it in so it will not contact the reel.



- 2 During road transport the arm must be folded in and the oil pressure must be released from the machine. Do not forget to secure the arm in the transport position.

**ATTENTION**

- Turn the drain-shaft arch slightly before folding in.
- Always secure the arm in the transport position prior to road transport.

**Remote control**

(Option WR)

Plug the power cable for the receiver into the tractor. Then press the 'green' start button on the remote control. A green indicator now lights up in the ABS housing.

Once the green indicator in the ABS housing is lit, the machine can be operated.

**OPERATION**

(Option WR)

|  |  |   |
|--|--|---|
| 1. Swing forwards  |  | 2. Swing backwards  |
| 3. Lower arm   |  | 4. Raise arm  |
| 5. Retract   |  | 6. Extend   |
| 7. Wind up<br>Start: press button<br>Detent: double click button<br>Stop: press button |  | 8. Wind out<br>Start: press button<br>Detent: double click button<br>Stop: press button |



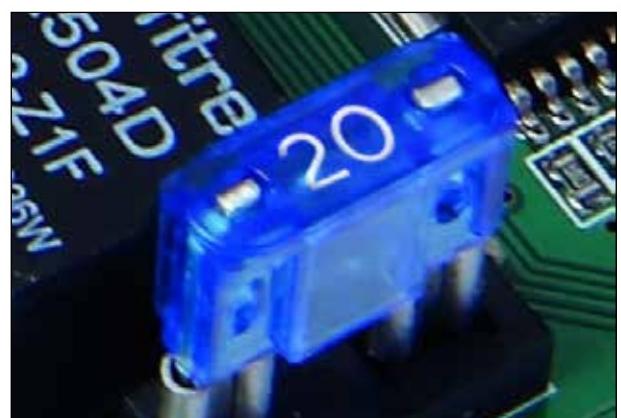
Do not leave the machine unattended while it is running. In an emergency situation press the red emergency stop button on the top of the remote control!

**Replacing the fuse**

(Option WR)

The fuse is located in the receiver. The receiver for the remote control is mounted in the ABS housing.

1. Disconnect the power cable from the tractor.
2. Remove the cover of the ABS housing (six screws).
3. Disconnect the plug on the front side of the receiver. Note: you must pull/slide the purple tab outward. Now the plug is released and can be disconnected from the receiver.
4. Unscrew the receiver from the ABS housing.
5. Detach the front side of the receiver by removing the two screws. Carefully slide the inside out of the housing.
6. Replace the 20 A fuse.
7. Fit the inside in the housing and place the receiver back in the ABS housing. Fit the cover with the six matching screws.



## 6 MAINTENANCE

### Introduction

The chapter provides information about maintaining the machine. Contact Sieger for maintenance that is not covered in this manual.

Avoid spilling oil and grease on the flushing hose. This can cause slipping when winding the hose in and out.



#### Safe maintenance

- Do not use the drain cleaner if any part is worn or damaged. Only replace parts with genuine Sieger Drain-Jet parts.
- Never leave the tractor engine running in an enclosed area (not even if the doors and windows are open) due to the risk of carbon monoxide poisoning!
- Wear close-fitting overalls, safety glasses (hydraulic oil!) and safety shoes.
- Use appropriate tools of the correct size.
- Ensure that no one can activate the machine during maintenance. Completely disconnect the machine from the tractor.
- Tighten bolts and nuts with the correct torque (see section 'Tightening torques').

## Hydraulic system

Contamination is the number one enemy of hydraulic systems:

- Work with clean hands and clean tools.
- Clean the area around a part before removing it.
- Cover the area where a part has been removed.
- Cover the end of a disconnected hose with the provided cap.



Replace damaged or leaking hydraulic hoses immediately.



NEVER use your fingers to try to locate a leak. Use a piece of cardboard. Hydraulic oil under high pressure can penetrate your skin. The penetration of hydraulic oil is an emergency situation. Danger of infection! Seek the help of a doctor immediately!

## Cardan shaft

Check the cardan shaft daily.

Replace damaged protective sleeves and protective guards around the cardan shaft immediately. Only use genuine parts.



- Rotating parts (cardan shaft).
- Only use the cardan shaft with the protective sleeve and protective guards in place and in good condition.
- Maintain a safe distance from the rotating cardan shaft.
- Prior to maintenance of the cardan shaft:
  - Disengage the PTO shaft and shut down the engine on the tractor.
  - Remove the ignition key from the ignition lock cylinder.

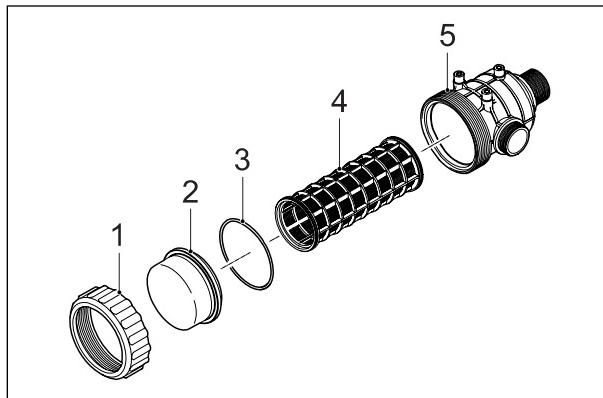
## Repairing the flushing hose

If the hose is damaged, the damaged section must be removed. The remaining hose sections can be attached together using one hose connector (106901PA252) and two clamping sleeves (106901PA253).

## Suction filter

Clean the filter element daily:

1. Remove the gland nut [1].
2. Remove the cap [2].
3. Remove the O-ring [3].
4. Remove and clean the filter element [4].
5. Place the parts back in the filter housing.



## Diaphragm pump

### Pressure accumulator

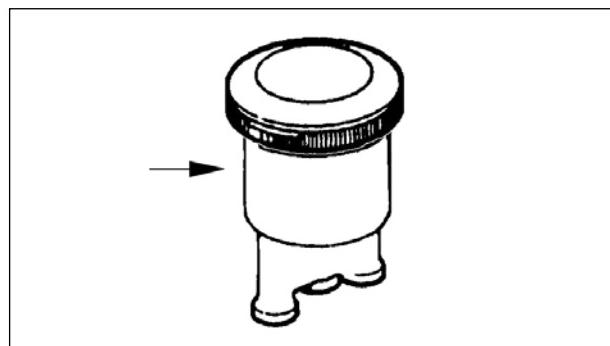
Check the air pressure in the pressure accumulator using a compressed air tyre filler with manometer. The desired air pressure depends on the pressure range within which the pump will be operated, in accordance with the table below:

| PUMP OPERATING PRESSURE |         | ACCUMULATOR AIR PRESSURE |        |
|-------------------------|---------|--------------------------|--------|
| bar                     | psi     | bar                      | psi    |
| 10-20                   | 145-290 | 5-7                      | 73-102 |
| 20-50                   | 290-725 | 7                        | 102    |

### Oil level

Check the oil level daily (after the pump has run for at least ten minutes):

1. Check the oil level.
2. Top up the oil if necessary.



### Replacing the diaphragms/oil

The diaphragms must be replaced once a year (preferably at the end of the season). This requires disassembly of the pump.



Excessive oil consumption or a sudden drop in oil level indicates a ruptured membrane. Stop the pump immediately.

Milky white discolouration of the oil indicates a ruptured membrane (water in the oil). Stop the pump immediately and contact Sieger.



The service life of the diaphragms is determined by the condition of the suction filter and the speed of the pump (mechanical wear).

#### ATTENTION

Do not allow the pump to run longer than two minutes without a supply of water.

## Tightening torques



Incorrectly tightened bolts and nuts can cause accidents. Tighten bolts and nuts in accordance with the table below (unless otherwise indicated in this manual).



Original bolts may only be replaced with bolts having the same dimensions and bolt class. Bolts that do not match the original ones can cause accidents.

| Dimension | <b>Tightening torques</b> |            |            |
|-----------|---------------------------|------------|------------|
|           | Class 8.8                 | Class 10.9 | Class 12.9 |
|           | Nm                        | Nm         | Nm         |
| M6        | 10                        | 15         | 18         |
| M8        | 25                        | 37         | 43         |
| M10       | 51                        | 75         | 87         |
| M12       | 87                        | 130        | 150        |
| M12 x 1.5 | 92                        | 135        | 155        |
| M14       | 140                       | 205        | 240        |
| M14 x 1.5 | 150                       | 220        | 260        |
| M16       | 215                       | 310        | 370        |
| M16 x 1.5 | 230                       | 340        | 390        |
| M18       | 300                       | 430        | 510        |
| M18 x 1.5 | 350                       | 490        | 580        |
| M20       | 430                       | 620        | 720        |
| M20 x 1.5 | 480                       | 690        | 800        |
| M22       | 580                       | 830        | 970        |
| M22 x 1.5 | 640                       | 920        | 1070       |
| M24       | 740                       | 1060       | 1240       |
| M24 x 2   | 810                       | 1160       | 1350       |
| M24 x 1.5 | 830                       | 1180       | 1380       |
| M27       | 1100                      | 1550       | 1850       |
| M27 x 2   | 1190                      | 1700       | 2000       |
| M30       | 1500                      | 2100       | 2500       |
| M 30 x 2  | 1610                      | 2300       | 2690       |
| M33       | 2000                      | 2800       | 3400       |
| M36       | 2600                      | 3700       | 4300       |



The bolt class is indicated on the bolt head. The tightening torques apply for dry bolts.

## Maintenance schedule

### Lubrication points

| Part                            | Action/material    | Daily | Weekly  | Annually |
|---------------------------------|--------------------|-------|---|----------|
| Water coupling                  | Lubrication grease |       | ✓   |          |
| Reel bearings                   | Lubrication grease |       | ✓   |          |
| Chain hose lead-through         | Lubrication grease |       |   | ✓        |
| Pivot points guide arm          | Lubrication grease |       |   | ✓        |
| Wheels hose lead-through        | Lubrication grease |       |   | ✓        |
| PTO shaft                       | Lubrication grease |       | ✓   |          |
| Pinch roller                    | Lubrication grease |       |   | ✓        |
| Extendible section of the arm   | Lubrication grease |       | ✓   |          |
| Distance indicator              | Engine oil 5W29    |       | ✓   |          |
| Pressure regulator              | Engine oil 5W30    |       |   | ✓        |
| Nylon rollers hose lead-through | Engine oil 5W30    |       | ✓   | ✓        |
| Nylon rollers drain-shaft arch  | Engine oil 5W30    |       | ✓   |          |
| Locking pins                    | Engine oil 5W30    |       | ✓   |          |
| Diaphragm pump                  | Top up oil         |       | First time after 300 hrs, then after 1000 hrs and/or after replacement of the diaphragms. |          |

### Inspect and clean

| Part                         | inspect/clean         | Daily                              | Weekly | Annually |
|------------------------------|-----------------------|------------------------------------|--------|----------|
| PTO shaft                    | Check guards          | ✓                                  |        |          |
| Suction filter               | Clean                 |                                    | ✓      |          |
| Suction strainer             | Clean                 | ✓                                  |        |          |
| Guards                       | Inspect               | ✓                                  |        |          |
| Lighting                     | Inspect               | ✓                                  |        |          |
| Safety stickers              | Inspect               | ✓                                  |        |          |
| Accumulator (diaphragm pump) | Check pressure 7 bar  |                                    | ✓      |          |
| Diaphragm pump               | Check oil level       | ✓                                  |        |          |
| Bolts and nuts               | Inspect and re-torque | After initial 5 hours of operation |        |          |

## Winter storage

1. Clean the machine. Dirt retains moisture, which causes rust. If you use a pressure washer, do not point it directly at bearings.
2. Place the machine in a dry, frost-free area. Never in the vicinity of fertilizer.
3. Repair paint damage (green = RAL 6018, grey = RAL 7021).
4. Apply an anti-corrosion product to bare metal parts.
5. Drain the suction filter.
6. Wind the hose onto the reel.
7. Run the pump until it draws air.
8. Engage the pressure regulator and turn the knob completely in.
9. Wind up the hose slowly. Water now sprays out of the nozzle. Stop when only air comes out of the nozzle.
10. Disengage the pressure regulator.
11. Order all parts that need to be replaced. Fit the parts when they arrive.

If the machine will not be stored in a dry, frost-free area and the diaphragms of the pump will not be replaced:

1. Disconnect the suction hose and fill the pump with antifreeze.
2. Let the pump shaft turn several revolutions.

## Commissioning after winter storage

Diaphragm pump: drain the antifreeze (if applicable). Dispose of the antifreeze in accordance with national regulations.

## 7 TROUBLESHOOTING

### Introduction

Consult the table to resolve problems. Contact Sieger if you cannot resolve the problem.

| Problem   | Possible cause  | Solution  |
|---|---|---|
| Diaphragm pump does not generate suction        | <ul style="list-style-type: none"> <li>• Pump is not getting enough water</li> <li>• Blocked suction filter</li> <li>• Filter cap not tightly sealed</li> <li>• Loose lines</li> <li>• Leaking hoses/lines</li> <li>• Leaking diaphragms</li> <li>• Damaged or worn suction/discharge valve or valve seats</li> </ul> | <ul style="list-style-type: none"> <li>• Completely submerge the suction strainer</li> <li>• Clean the filter element</li> <li>• Tighten the cap</li> <li>• Tighten the fittings</li> <li>• Replace the hoses/lines</li> <li>• Replace diaphragms</li> <li>• Replace the cylinder head</li> <li>• Replace the pump</li> </ul> |
| Diaphragm pump: pressure too low or fluctuating | <ul style="list-style-type: none"> <li>• Pump is not getting enough water</li> <li>• Blocked suction filter</li> <li>• Loose lines</li> <li>• Pressure in the accumulator too low</li> <li>• Leaking diaphragms</li> <li>• Damaged or worn suction/discharge valve or valve seats</li> </ul>                          | <ul style="list-style-type: none"> <li>• Completely submerge the suction strainer</li> <li>• Clean the filter element</li> <li>• Tighten the fittings</li> <li>• Pump up the accumulator (7 bar)</li> <li>• Replace the diaphragms</li> <li>• Replace the cylinder head</li> <li>• Replace the pump</li> </ul>                |
| Not possible to regulate pressure               | <ul style="list-style-type: none"> <li>• Valve and seat in the pressure regulator are worn</li> </ul>   | <ul style="list-style-type: none"> <li>• Replace</li> </ul>   |
| Water pressure drops off                        | <ul style="list-style-type: none"> <li>• Oil level too low</li> <li>• Valve spring broken</li> </ul>  | <ul style="list-style-type: none"> <li>• Top up</li> <li>• Replace</li> </ul>   |
| Pump knocks (ticking sound)                     | <ul style="list-style-type: none"> <li>• Blocked suction filter</li> </ul>  | <ul style="list-style-type: none"> <li>• Clean the filter element</li> </ul>  |
| Hydraulics not working                          | <ul style="list-style-type: none"> <li>• Flow control valve stuck fully open</li> </ul>   | <ul style="list-style-type: none"> <li>• Tighten several turns</li> </ul>   |
| Reel does not roll out                          | <ul style="list-style-type: none"> <li>• Contamination in flow restrictor: reel hydraulic motor</li> </ul>  | <ul style="list-style-type: none"> <li>• Clean</li> </ul>   |
| Reel does not roll in                           | <ul style="list-style-type: none"> <li>• Contamination in flow restrictor: on hydraulic motor drive rollers</li> </ul>  | <ul style="list-style-type: none"> <li>• Clean</li> </ul>   |
| Hydraulic oil getting too hot                   | <ul style="list-style-type: none"> <li>• Hole in flow restrictor on hydraulic motor drive rollers too small or plugged</li> </ul>   | <ul style="list-style-type: none"> <li>• Clean</li> <li>• Drill the hole (<math>\varnothing 1.4</math>) to an oversize several tenths of a millimetre larger (not too much!)</li> </ul>   |
| Remote control                                  | <ul style="list-style-type: none"> <li>• Remote control does not work</li> </ul>  | <ul style="list-style-type: none"> <li>• Battery is flat</li> <li>• Emergency stop button (on the remote control) is pressed in</li> <li>• Green indicator lamp on the ABS housing is not lit</li> <li>• Fuse is blown; see section 'replacing the fuse'</li> </ul>   |

## 8 ENVIRONMENT

### Introduction

Environmental impact must be prevented as much as possible during use and maintenance of the drain cleaner.

Measures to protect the environment:

- Operate and maintain your drain cleaner in accordance with the instructions in this manual.
- Dispose of oil filters and used oil in accordance with national regulations.
- Dispose of the defective parts in accordance with national regulations.

## 9 DISPOSAL

### Introduction

With normal use and proper maintenance the drain cleaner will have a very long service life. When the drain cleaner is disposed of after many years, this must be done in a safe and environmentally responsible manner. Many of the materials used are recyclable.



### Disposal procedure

Follow this procedure:

1. Wear close-fitting overalls, safety shoes and safety glasses.
2. Use appropriate tools of the correct size.
3. Use suitable, safety-tested lifting equipment.
4. Relieve the pressure in the hydraulic system and drain all the oil.
5. Dispose of all oil in accordance with national regulations.
6. Remove all rubber and plastic parts.
7. Remove all electronic parts.
8. Dispose of all parts in accordance with national regulations.

## 10 TECHNICAL SPECIFICATIONS

### Dimensions and weights

|                                    |    |     |
|------------------------------------|----|-----|
| Length                             | m  | 1.0 |
| Width                              |    |     |
| Arm retracted                      | m  | 2.4 |
| Extended and fully retracted       | m  | 6.5 |
| Extended                           | m  | 0.8 |
| Height                             |    |     |
| Top of arm (in transport position) | m  | 3.1 |
| Top of reel                        | m  | 2.3 |
| Weight                             |    |     |
| Mass empty                         | kg | 400 |
| Mass with water                    | kg | 565 |

### Diaphragm pump

|   |       |  |
|---|-------|--|
| Brand and type  | -     | Comet™ APS 145 piston diaphragm pump                                     |
| Drive   | -     | By tractor PTO shaft and supplied cardan shaft: WalterscheidTM W100E1010 |
| Minimum speed   | rpm   | 300  |
| Recommended speed   | rpm   | 350-370  |
| Maximum speed   | rpm   | 540  |
| Optimum operating pressure                                    | bar   | 30-35  |
| Maximum operating pressure                                    | bar   | 50   |
| Maximum flow rate   | l/min | 142  |
| Correct air precharge (at an operating pressure of 30-35 bar) | bar   | 7  |

### Flushing hose & flushing speed

|   |       |                         |
|---|-------|-------------------------|
| Material, flushing hose                 | -     | HPE (Hard PolyEthylene) |
| Length, flushing hose                   | m     | 500                     |
| Diameter, flushing hose                 | mm    | 27                      |
| Wall thickness, flushing hose           | mm    | 3.3                     |
| Drive, flushing hose                    | -     | Hydraulic               |
| Recommended wind-out speed <sup>1</sup> | m/min | 30 m/min                |
| Recommended wind-up speed <sup>1</sup>  | m/min | 20-25 m/min             |

<sup>1</sup>Depending on the circumstances and drainage tube diameter

## Hoses and cleaning hoses

|                           |   |  |
|---------------------------|---|--|
| Length suction hose       | m | 10   |
| Length, overflow hose     | m | 6  |
| Cleaner nozzle (standard) | - | 1x Ø2 mm forward-pointing.<br>12x Ø2 mm backward-pointing at 15° angle                                       |
| Cleaner nozzles (options) | - | <i>For stubborn contamination:</i><br>1x Ø2 mm forward-pointing.<br>12x Ø2 mm backward-pointing at 30° angle |
|                           | - | <i>For sticky clay:</i><br>1 forward-pointing hole.<br>3 backward-pointing holes at 30° angle                |
|                           | - | <i>For large pipe diameters (Ø60, Ø75, Ø100 and Ø125 mm):</i><br>Cleaning nozzles with guide                 |

## Remote control (type WR)

|                                    |     |             |
|------------------------------------|-----|-------------|
| Frequency                          | MHz | 868         |
| Battery type                       | -   | 'AAA' 1.5 V |
| Service life of battery in standby | h   | 2500        |
| Service life of battery in use     | h   | 100         |
| Range                              | m   | 100         |
| Temperature                        | °C  | -20 to +70  |



The maximum noise level is produced by the tractor. Consult the tractor documentation to determine whether hearing protection is required.

## 11 OPTIONS

### Drain-shaft arches

For drain cleaning via drain collection points (drain-shafts): for 30 cm and for 40 to 60 cm.  
See section 'Spare parts'.

### Nozzles (or cleaning nozzles)

Various optional cleaning nozzles are available to match the type of soil, degree of contamination and diameter of the drain pipe.  
See section 'Spare parts'.

### Swing-arm function (for upgrade from type S to HS)

112202SP002

This conversion kit includes everything need to add the swing-arm function to the standard machine.

## 12 SPARE PARTS

### Spare parts

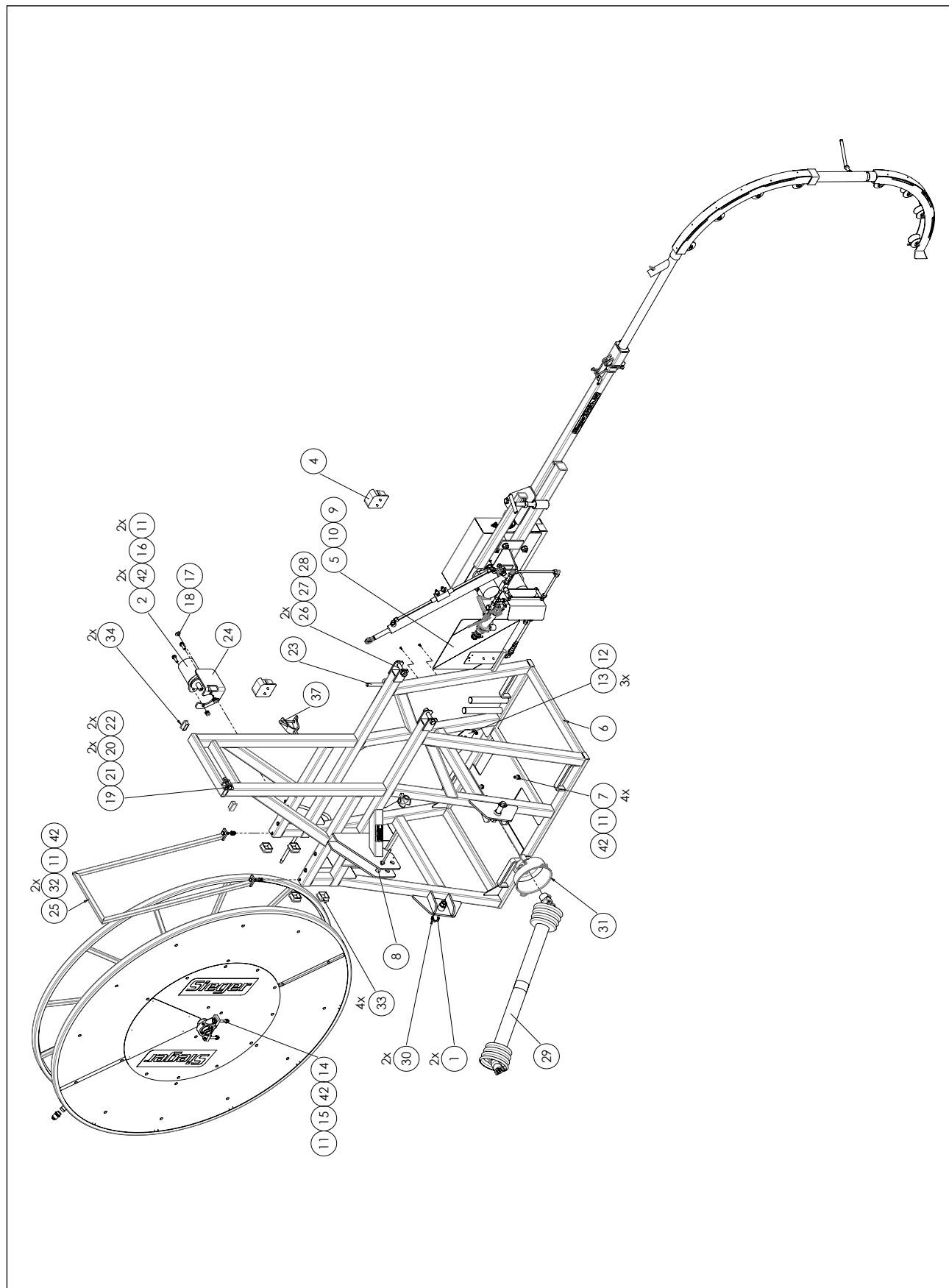
Use genuine Drain-Jet parts. You can order these machine-specific parts at [www.sieger-machinery.com](http://www.sieger-machinery.com). Genuine Drain-Jet parts are specifically designed for this drain cleaner. The use of non-OEM parts can have a negative impact on the operation of the drain cleaner and can make the drain cleaner unsafe. Sieger accepts no liability for damage or injury resulting from the use of non-OEM parts.



Parts without a part number are not sold by Sieger as spare parts. However, these are not machine-specific and are available from general suppliers of technical parts.

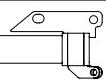
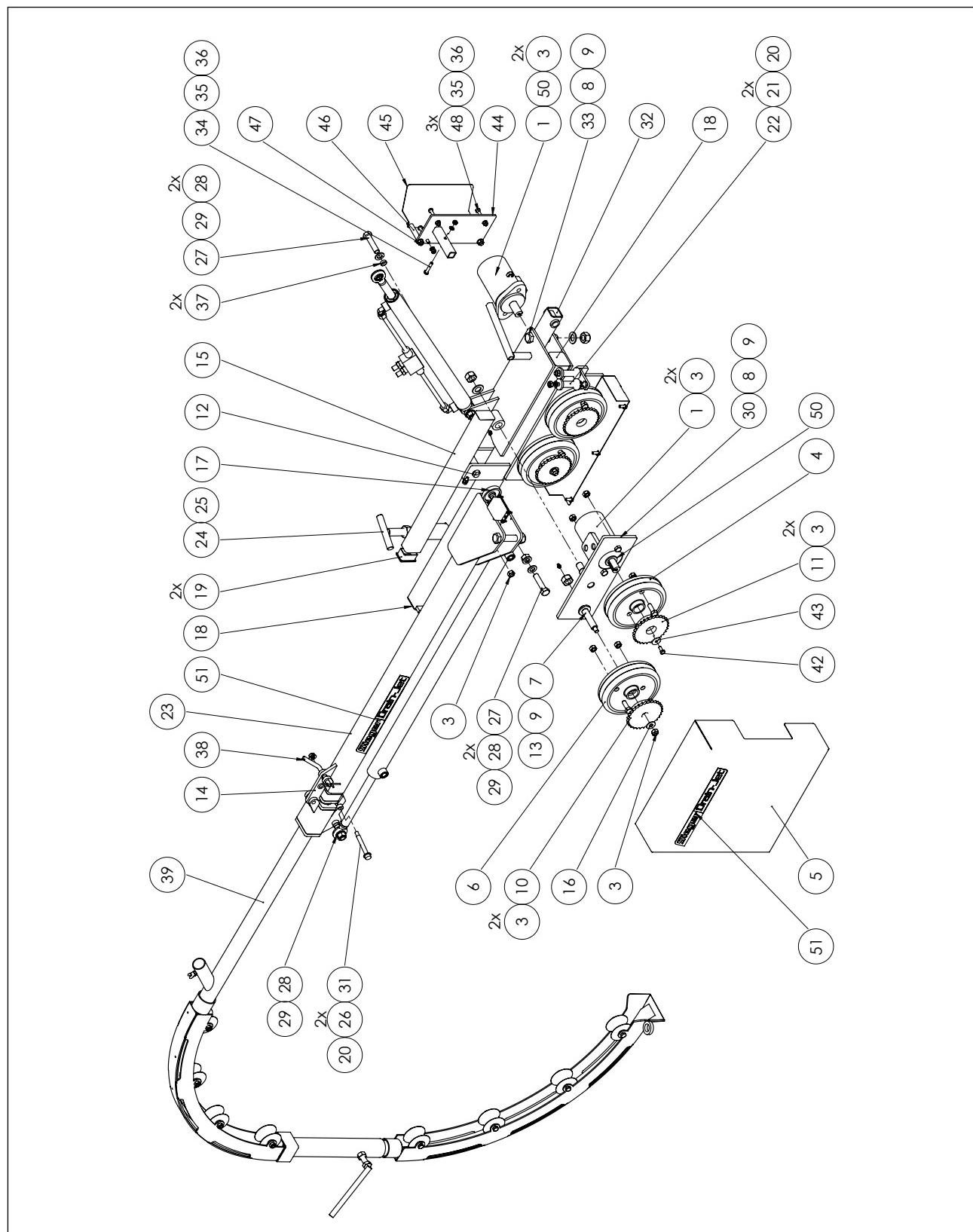
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**Drain cleaner**

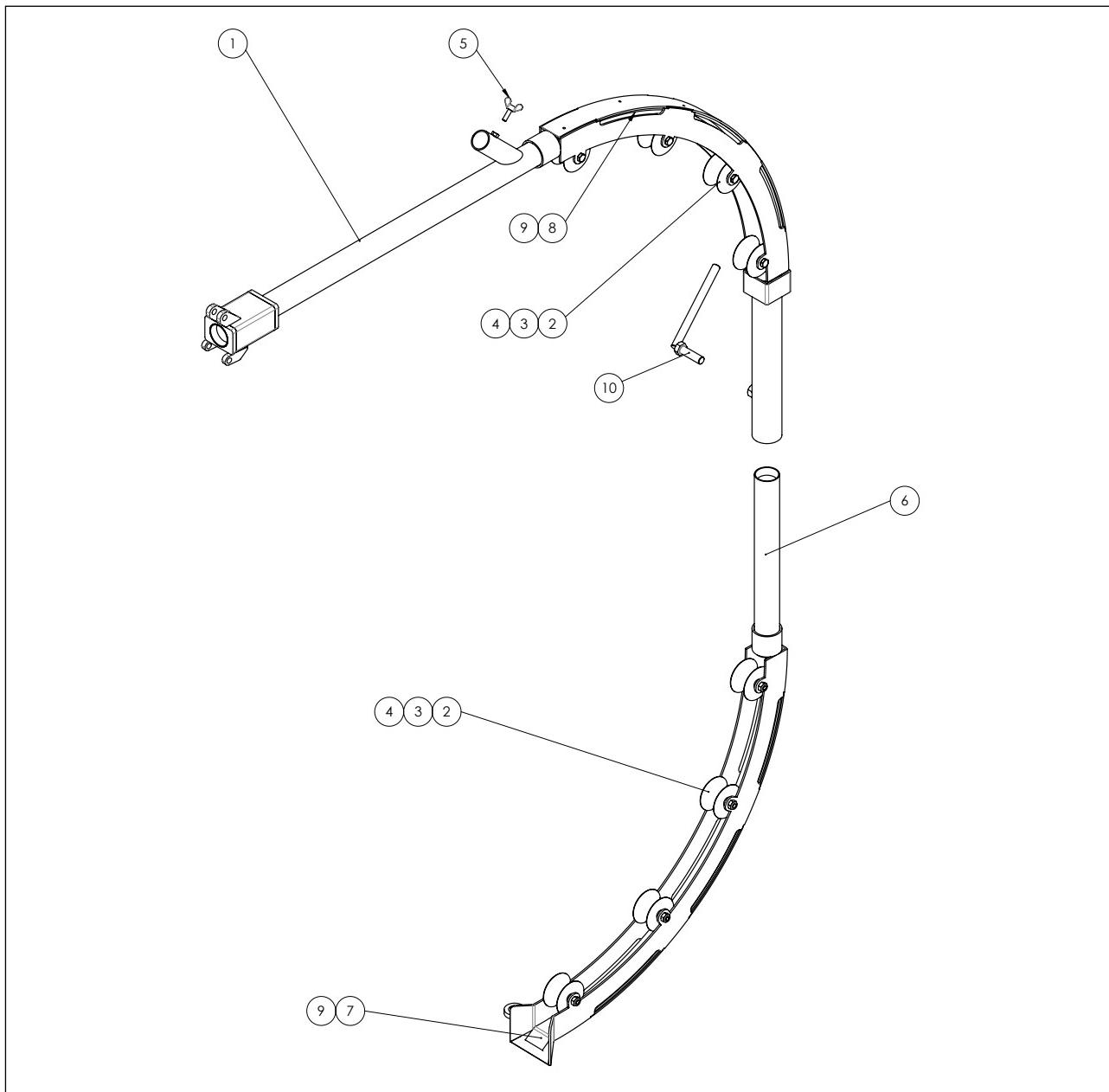


## Arm

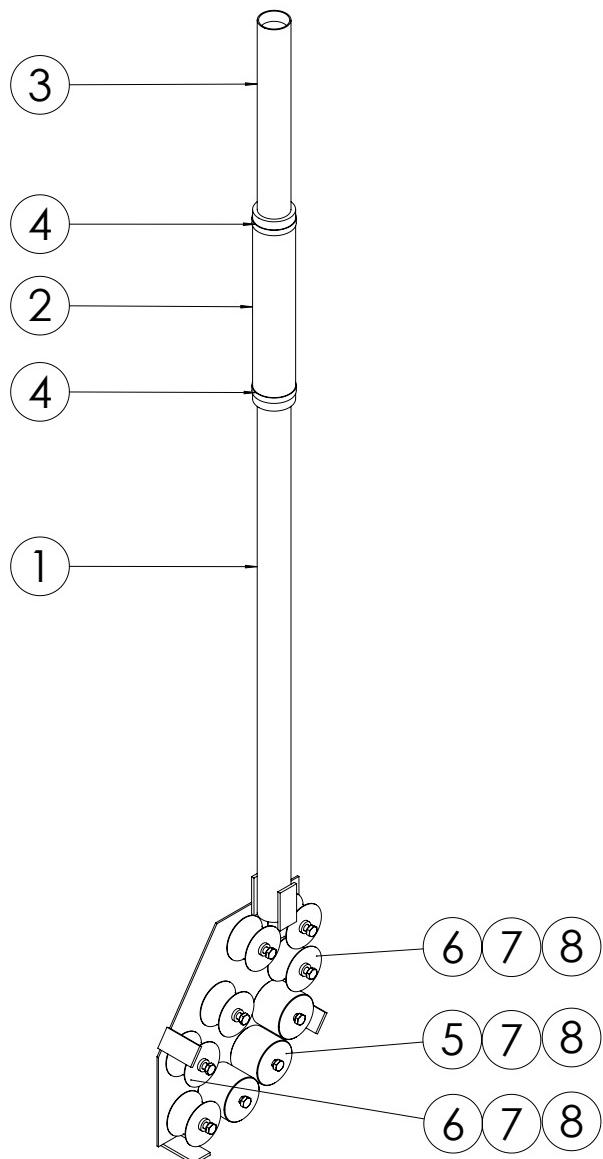


(Pos. 14) 112202AS010

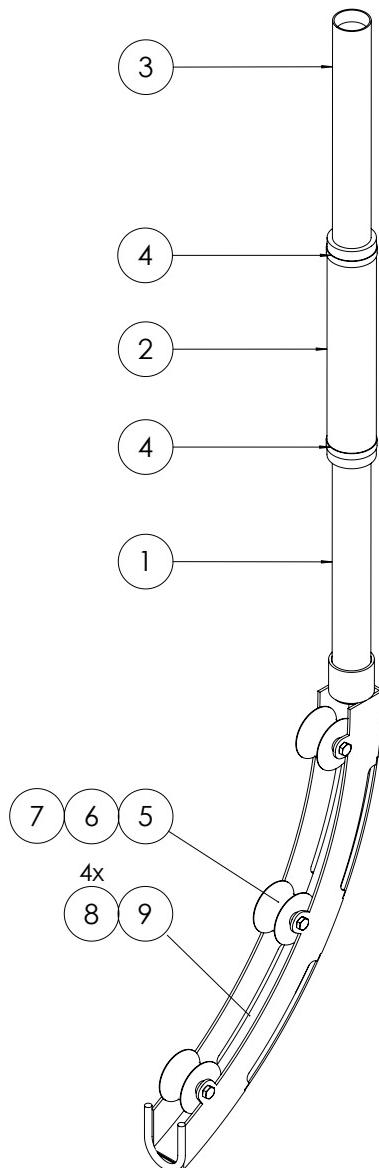
| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                               |
|-------------|------------------------|--|
| 1           | 106901BP120            | Hydraulic motor                                  |
| 2           |                        | Bolt M12x45                                      |
| 3           |                        | Nyloc nut M12                                    |
| 4           | 106901AS012            | Drive wheel, motor side                          |
| 5           | 112202AS004            | Protective cover                                 |
| 6           | 106901PA040            | Drive wheel                                      |
| 7           | 112202PA031            | Drive wheel, shaft                               |
| 8           |                        | Washer M20                                       |
| 9           |                        | Nyloc nut M20                                    |
| 10          | 106901AS226            | Sprocket   |
| 11          | 106901AS225            | Sprocket, motor side                             |
| 12          | 112202PA217            | Pinch roller shaft                               |
| 13          | 106901BP035            | Lubrication nipple M8                            |
| 14          | 112202AS010            | Extension segment                                |
| 15          | 112202AS012            | Pinch roller                                     |
| 16          |                        | Washer M12X30                                    |
| 17          | 106901AS014            | Assembly, distance indicator                     |
| 18          |                        | Insert cap 60x60x4                               |
| 19          |                        | Insert cap 60x40x4                               |
| 20          |                        | Nyloc nut M10                                    |
| 21          |                        | Washer M10                                       |
| 22          | 112202PA033            | Wheel for hose guide                             |
| 23          |                        | Frame arm  |
| 24          | 106901AS013            | Adjustment bolt                                  |
| 25          | 106901AS016            | Spring, pinch roller                             |
| 26          |                        | Washer M12                                       |
| 27          |                        | Bolt M16x70                                      |
| 28          |                        | Washer M16                                       |
| 29          |                        | Nyloc nut M16                                    |
| 30          | 112202AS203            | Frame, upper drive wheels                        |
| 31          | 51.044.100.080         | Stainless steel close tolerance bolt (M10) 12x80 |
| 32          | 112202AS009            | Pivot  |
| 33          |                        | Bolt M20x100                                     |
| 34          |                        | Bolt M8 x 40                                     |
| 35          |                        | Washer   |
| 36          |                        | Nyloc nut M8                                     |
| 37          | 112202PA045            | Spacer bush, cylinder                            |
| 38          | 112202AS011            | Locking pin + cable + cotter pin                 |
| 39          |                        | See next page                                    |
| 40          | 106901BP125            | Master link 1/2"08B1                             |
| 41          | 112202BP008            | Roller chain 1/2"                                |
| 42          |                        | Bolt M8x20                                       |
| 43          |                        | Washer M8x30x1.5                                 |
| 44          | 112202AS501            | Hydraulic block bracket                          |
| 45          |                        | Sticker plate                                    |
| 46          | 112202PA507            | Tube   |
| 47          |                        | Bolt M10x90                                      |
| 48          |                        | Bolt M8x65                                       |
| 49          |                        | Control panel sticker                            |
| 50          |                        | Ring (d1 = 26 d2= 40)                            |
| 51          |                        | Sticker Sieger Drain-Jet                         |

**Guide arm**

| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                |
|-------------|------------------------|-----------------------------------|
| 1           | 112202AS007            | Guide bar                         |
| 2           | 106901PA255            | Guide roller Ø75                  |
| 3           |                        | Bolt M10x70                       |
| 4           |                        | Nyloc nut M10                     |
| 5           |                        | Wing bolt M8X25                   |
| 6           | 106901AS203            | Drain-shaft arch standard         |
| 7           | 106901PA262            | glide strip 1040                  |
| 8           | 106901PA263            | glide strip 1000                  |
| 9           | 34110-040.012          | Pop rivet 4.0 x 12.0 (100 pieces) |
| 10          | 106901AS017            | Clamping bolt, drain-shaft arch   |
|             |                        |                                   |
|             |                        |                                   |
|             |                        |                                   |

**Drain-shaft arch – 30 cm (option)**

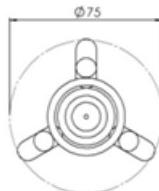
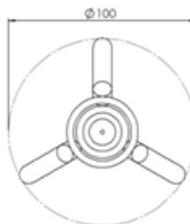
| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                        |
|-------------|------------------------|---|
| 0           | 106901AS230            | Complete assy. – Drain-shaft arch – 30 cm |
| 1           | 106901AS231            | Frame drain-shaft arch 30 cm              |
| 2           | 106901PA233            | Hose                                      |
| 3           | 106901PA232            | Tube                                      |
| 4           |                        | Hose clamp                                |
| 5           | 106901PA248            | Guide roller                              |
| 6           | 106901PA255            | Guide roller Ø75                          |
| 7           |                        | Bolt M10x80                               |
| 8           |                        | Nyloc nut M10                             |
|             |                        |   |
|             |                        |   |
|             |                        |   |

**Drain-shaft arch – 40 to 60 cm (option)**

| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                              |
|-------------|------------------------|---|
| 0           | 106901AS206            | Complete assy. – Drain-shaft arch – 40 to 60 cm |
| 1           | 106901AS205            | Drain-shaft arch 40 - 60 cm                     |
| 2           | 106901PA233            | Hose  |
| 3           | 106901PA232            | Tube  |
| 4           |                        | Hose clamp                                      |
| 5           | 106901PA255            | Guide roller Ø75                                |
| 6           |                        | Bolt M10x70                                     |
| 7           |                        | Nyloc nut M10                                   |
| 8           | 34110-040.012          | Pop rivet 4.0 x 12.0 (100 pieces)               |
| 9           | 106901PA271            | glide strip 712                                 |
|             |                        |   |
|             |                        |   |
|             |                        |   |

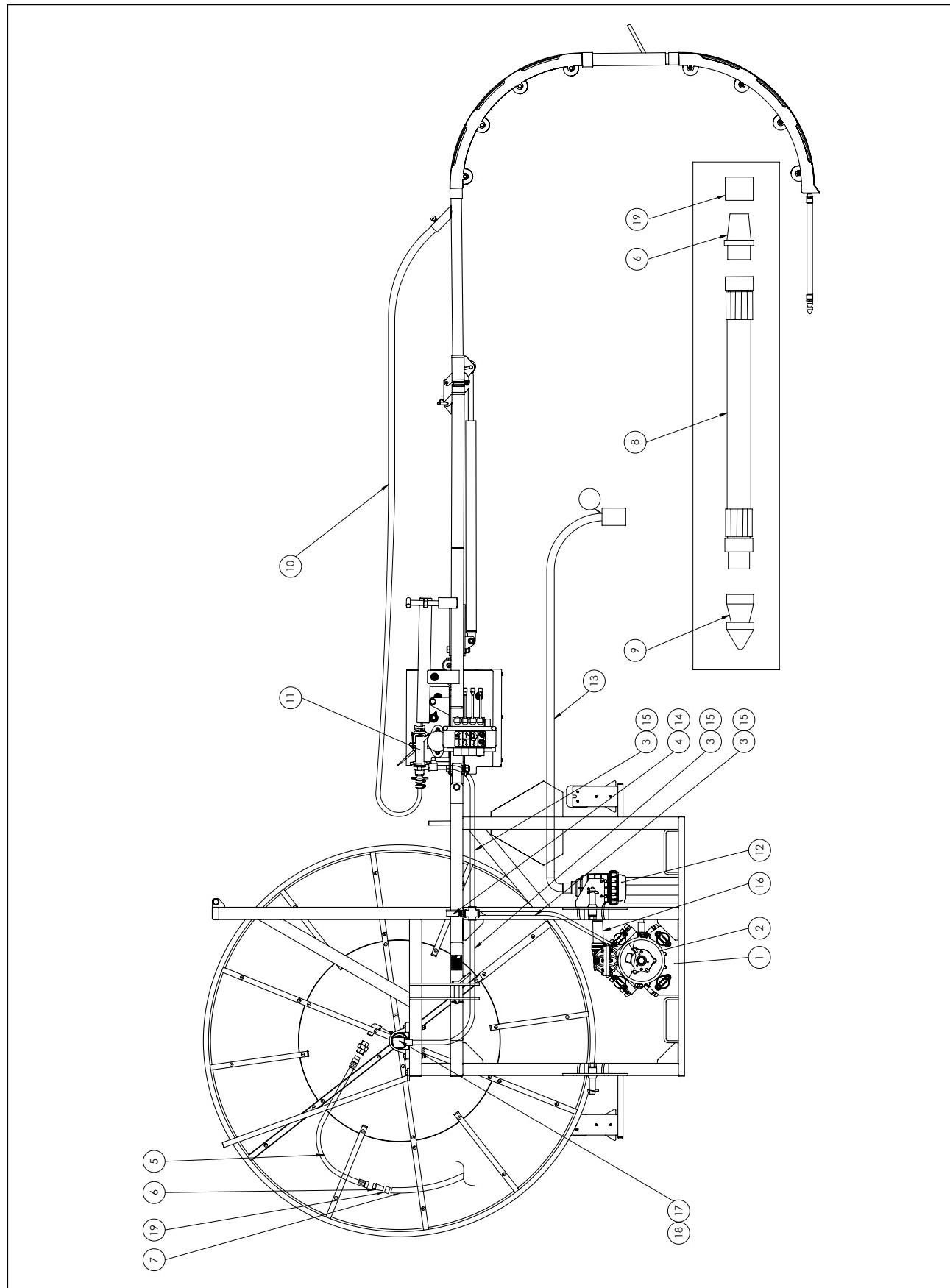
**Cleaner heads (option)**

| 106901AS402   | 106901PA274   | 106901PA272  | 106901PA273   |
|---|---|--|---|
|  |  |  |  |
| Nozzle 15° Ø60  | Nozzle 15°  | Nozzle 30°   | Nozzle 30°  |
| <b>Spray holes</b><br>1 forward-pointing,<br>12 backward-pointing                 | <b>Spray holes</b><br>1 forward-pointing,<br>12 backward-pointing                 | <b>Spray holes</b><br>1 forward-pointing,<br>12 backward-pointing                  | <b>Spray holes</b><br>1 forward-pointing,<br>3 backward-pointing                    |
| <b>Application</b><br>For large pipe diameters                                    | <b>Application</b><br>Standard version  | <b>Application</b><br>For stubborn<br>contamination                                | <b>Application</b><br>For sticky clay   |

| 106901AS403   | 106901AS404   | 106901AS405   |
|---|---|---|
|    |    |   |
| <b>Spray holes</b><br>1 forward-pointing, 12 backward-pointing                      | <b>Spray holes</b><br>1 forward-pointing, 12 backward-pointing                      | <b>Spray holes</b><br>1 forward-pointing, 12 backward-pointing                        |
| <b>Application</b><br>For large pipe diameters Ø75                                  | <b>Application</b><br>For large pipe diameters Ø100                                 | <b>Application</b><br>For large pipe diameters Ø125                                   |
|  |  |  |

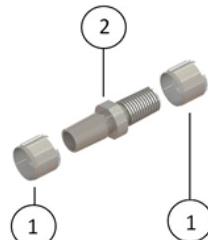
**Hose connection (option)**

| Pos. | Sieger part no. | Description   |
|------|-----------------|---------------|
| 1    | 106901PA253     | Clamping bush |
| 2    | 106901PA252     | Hose coupling |

**Water plumbing**

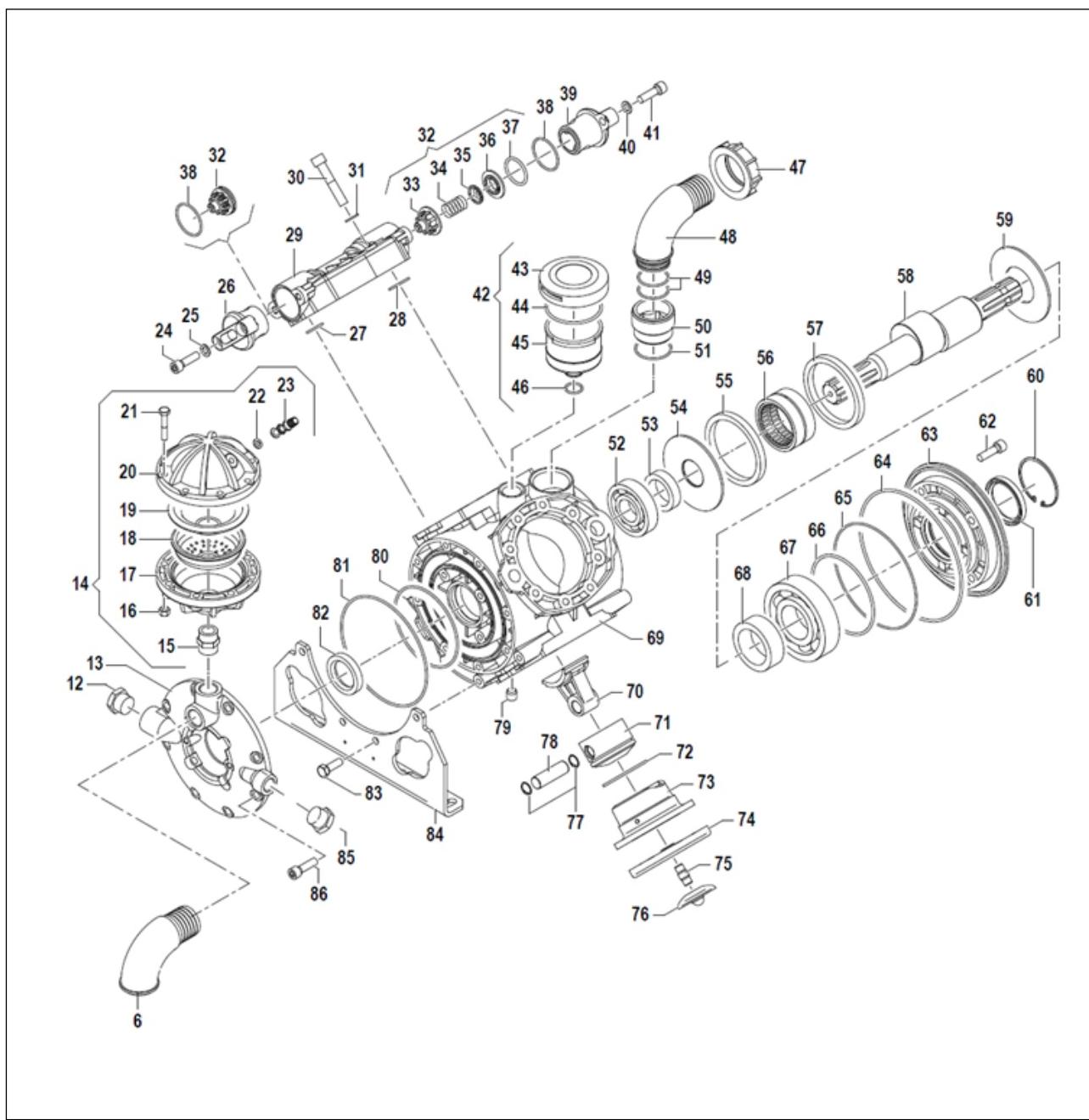
| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                |
|-------------|------------------------|-----------------------------------|
| 1           | 106901SP001            | Diaphragm pump                    |
| 2           | 106901BP110            | Protection guard (diaphragm pump) |
| 3           | 106901BP056            | Hydraulic hose                    |
| 4           | 106901BP068            | Manometer                         |
| 5           | 112202BP532            | Hydraulic hose                    |
| 6           | 106901PA251            | Hose coupling                     |
| 7           | 106901BP500            | Flushing hose (500 m)             |
| 8           | 106901BP072            | Flexible hose                     |
| 9           | 106901PA274            | Standard cleaner nozzle           |
| 10          | 106901BP067            | Hose (6 m)                        |
| 11          | 106901BP042            | Pressure regulator                |
| 12          | 106901BP043            | Suction filter                    |
| 13          | 106901AS233            | Suction hose (complete)           |
| 14          | 106901BP070            | Screw-in coupling                 |
| 15          | 106901BP074            | Screw-in coupling                 |
| 16          | 106901BP051            | Hose (1 m)                        |
| 17          | 106901BP044            | Swivel coupling                   |
| 18          | 106901BP071            | Double nipple                     |
| 19          | 106901PA253            | Clamping bush                     |
|             |                        |                                   |
|             |                        |                                   |
|             |                        |                                   |

## Hose connection

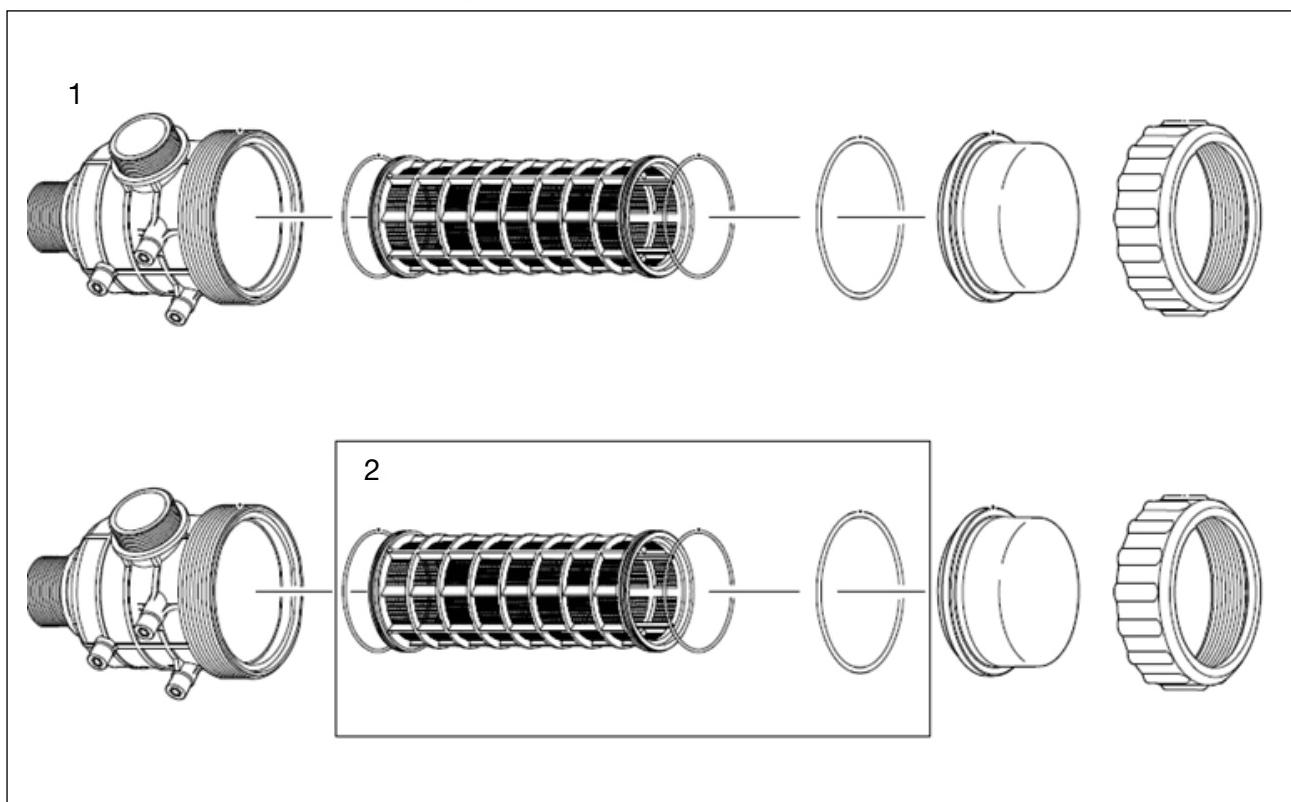


| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b> |
|-------------|------------------------|--------------------|
| 1           | 106901PA253            | Clamping bush      |
| 2           | 106901PA252            | Hose coupling      |

## Maintenance set APS 145 pump

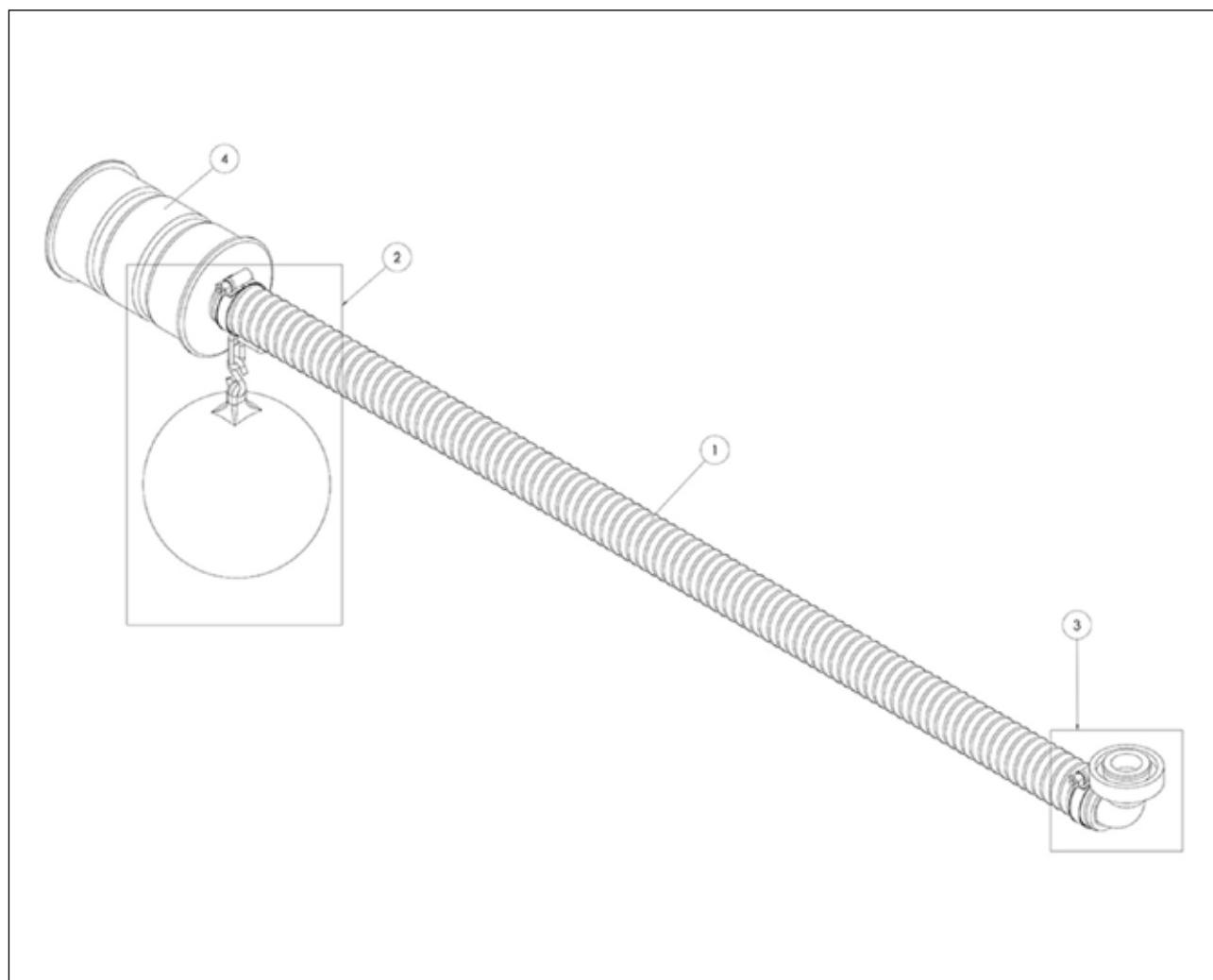


| Pos.             | Sieger part no. | Description   |
|------------------|-----------------|---|
| Set consists of: |                 | Maintenance set APS 145 pump:   |
| 19.              |                 | Diaphragm accumulator (1x)  |
| 27.              |                 | O-ring (4x)   |
| 28.              |                 | O-ring (4x)   |
| 32.              |                 | Assembly pos. 32 (8x)   |
| 33.              |                 | <ul style="list-style-type: none"> <li>o Valve cage</li> <li>o Spring</li> <li>o Valve</li> <li>o Valve seat</li> <li>o O-ring</li> </ul> |
| 34.              |                 | O-ring (8x)   |
| 35.              |                 | Diaphragm (4x)  |
| 36.              |                 |   |
| 37.              |                 |   |
| 38.              |                 |   |
| 74.              |                 |   |

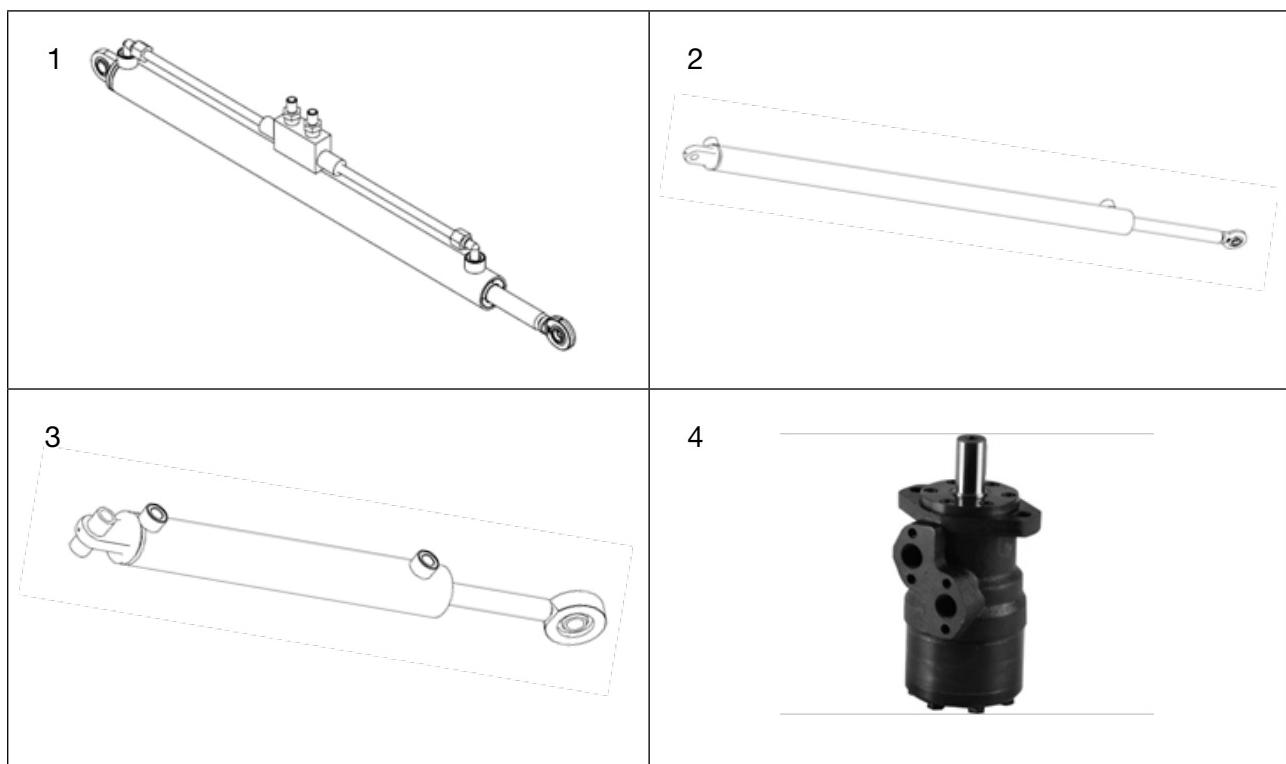
**Suction filter & Pressure regulator**

| Pos. | Sieger part no. | Description  |
|------|-----------------|--|
| 1    | 106901PA253     | Suction filter   |
| 2    | 112202SP100     | Filter set:<br>Filter element<br>O-ring Ø101 (2x)<br>O-ring Ø126 |

## Suction hose

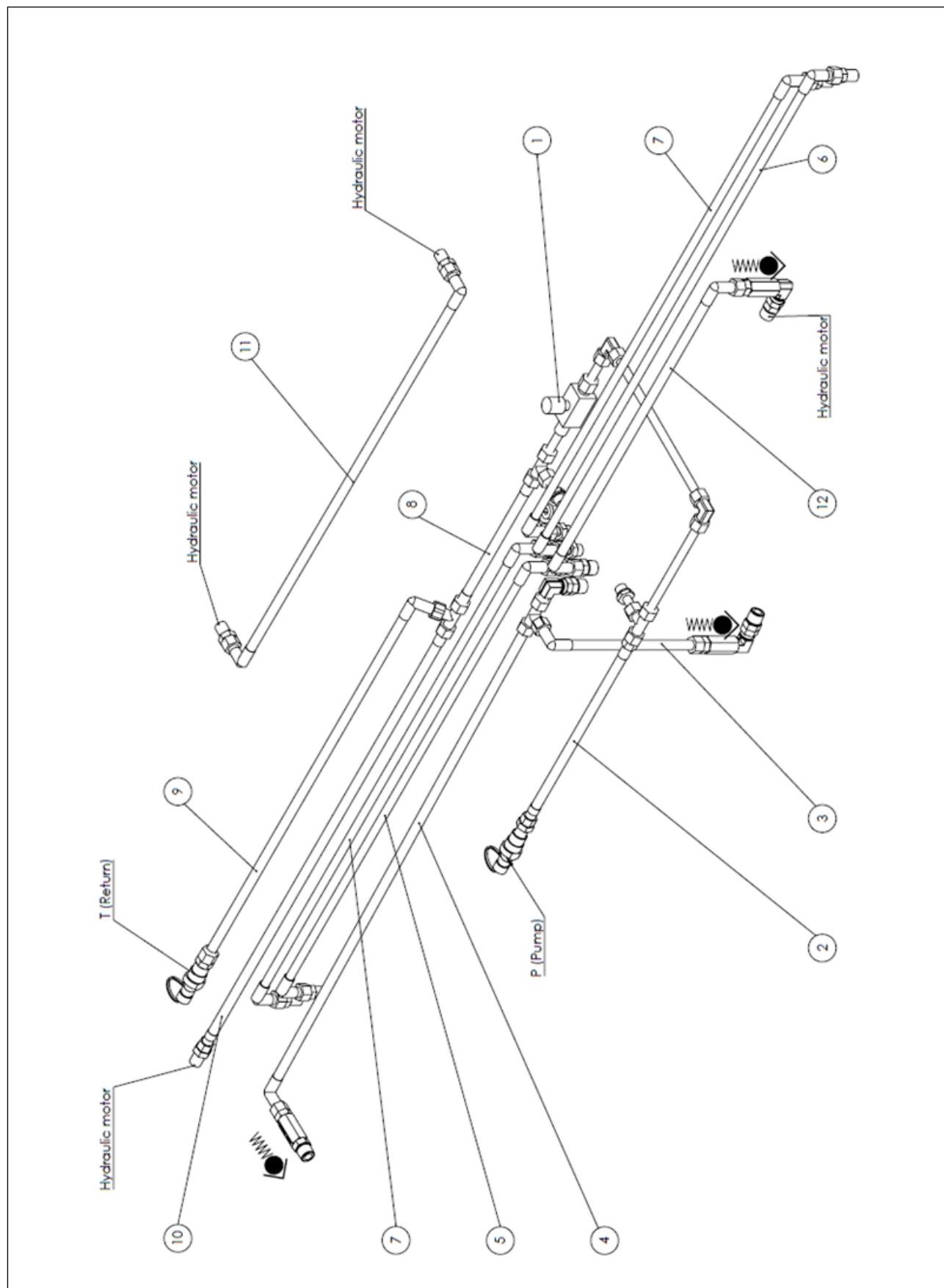


| Pos. | Sieger part no. | Description   |
|------|-----------------|---|
| 0    | 106901AS233     | Suction hose complete   |
| 1    | 112202BP005     | Suction hose (10 m)   |
| 2    | 112202SP101     | Float set:<br>Hose clamp<br>Float<br>S-hook<br>Chain, 2 links   |
| 3    | 112202SP102     | Connection set, suction hose/suction filter:<br>Hose socket, right angle 1 1/4" x 30<br>Gland nut<br>O-ring<br>Hose clamp |
| 4    | 106901BP060     | Suction basket  |

**Hydraulic**

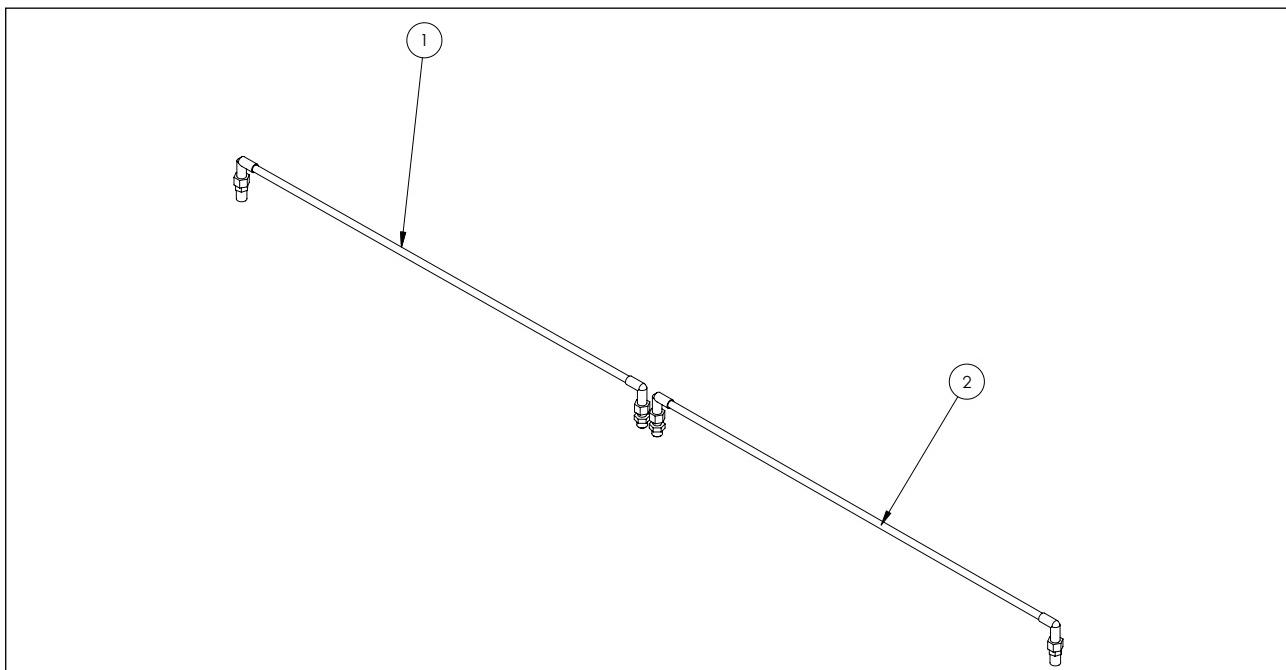
| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>                                    |
|-------------|------------------------|---|
| 1           | 112202AS504            | Cylinder up/down incl. double-acting non-return valve |
| 2           | 112202BP502            | Cylinder extend/retract & fold out/fold in            |
| 3           | 112202BP500            | Cylinder swing left/right (type HS and WR)            |
| 4           | 106901BP120            | Hydraulic motor                                       |

## Hydraulic hoses

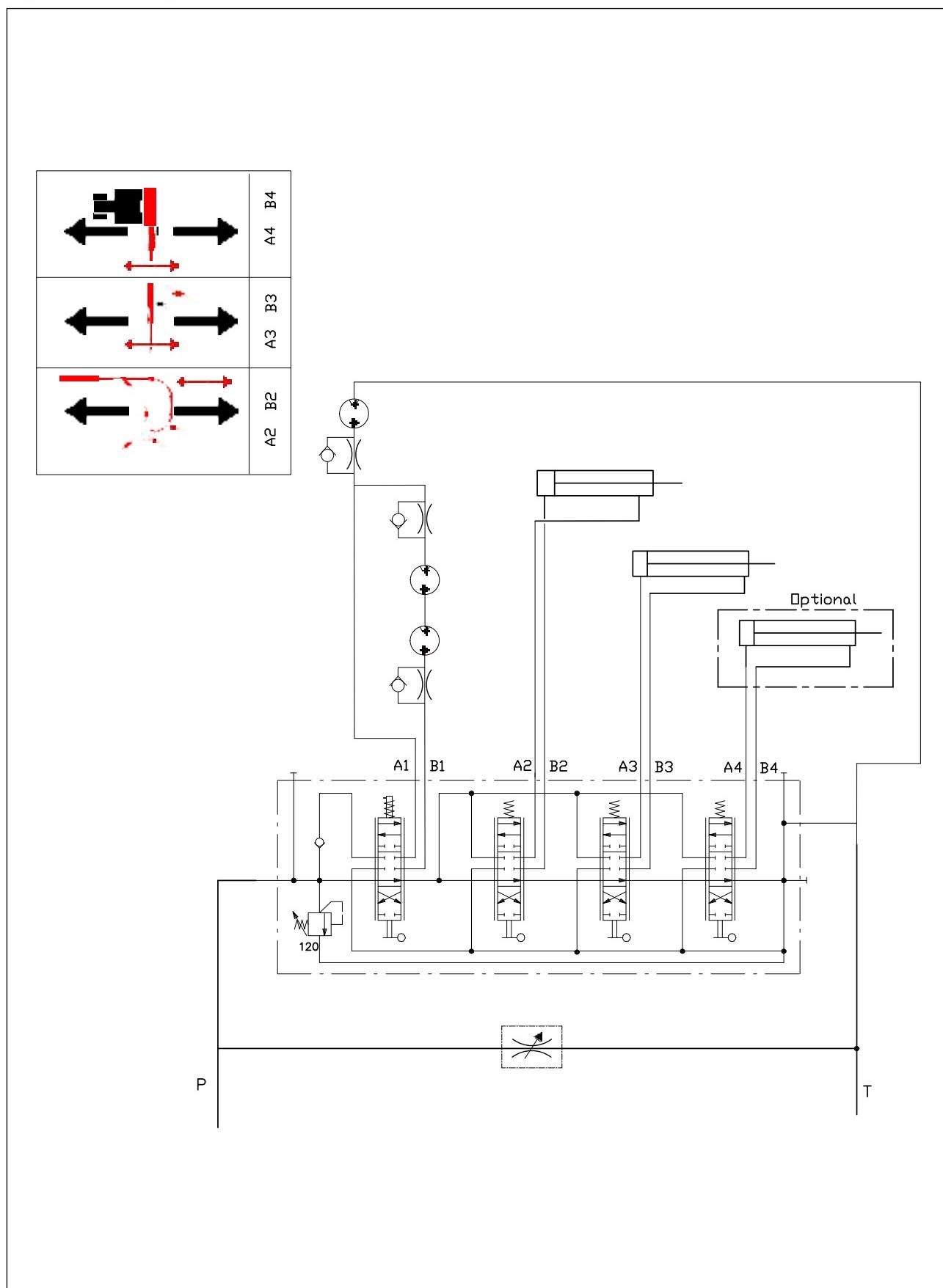


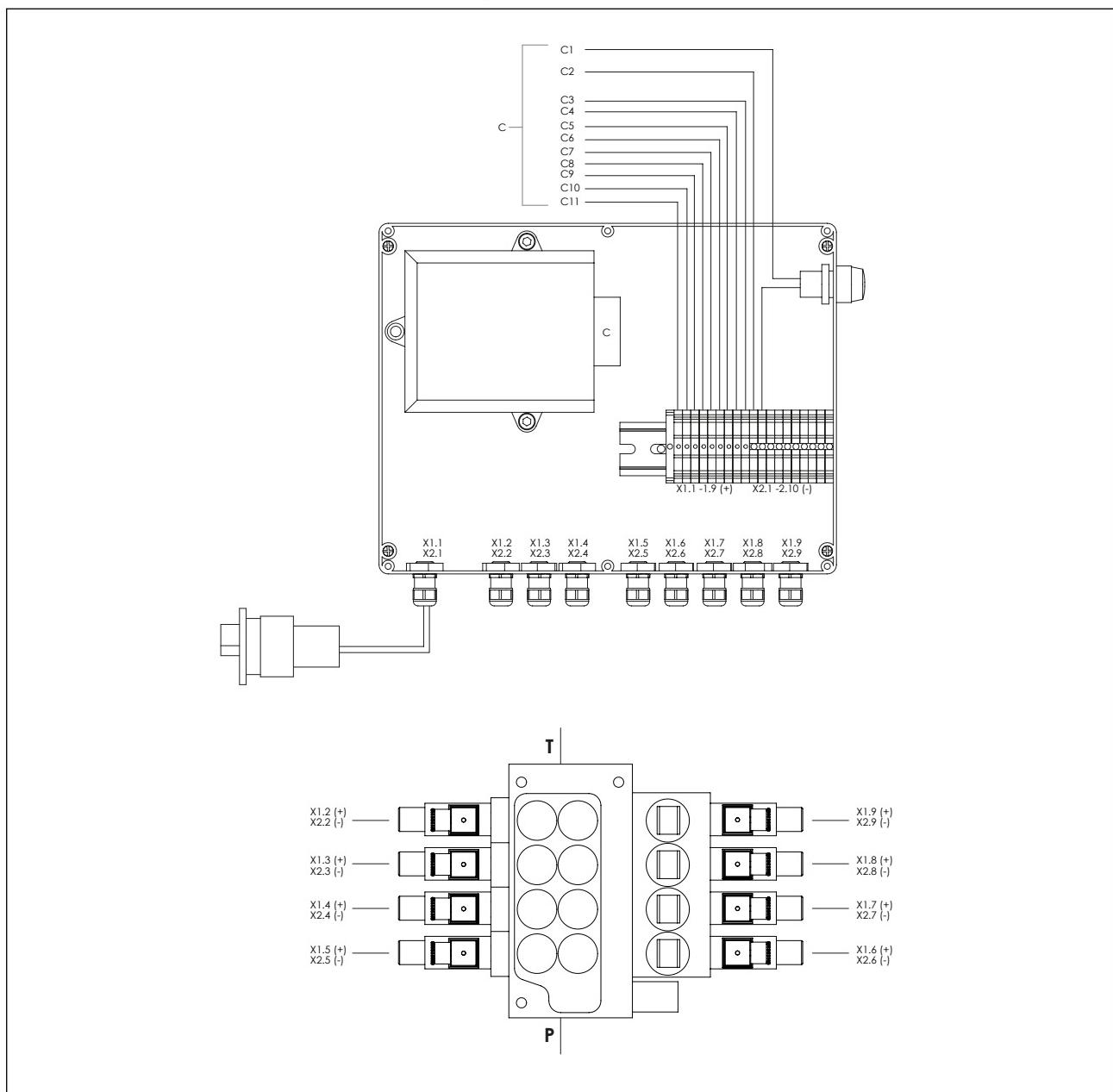
| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b>  | <b>Quant.</b> |
|-------------|------------------------|---------------------|---------------|
| 1           | 106901BP081            | Speed control valve | 1             |
| 2           | 106901BP092            | Hose L (mm) = 2000  | 1             |
| 3           | 112202BP516            | Hose L (mm) = 270   | 1             |
| 4           | 112202BP515            | Hose L (mm) = 3120  | 1             |
| 5           | 112202BP514            | Hose L (mm) = 2160  | 1             |
| 6           | 112202BP517            | Hose L (mm) = 1380  | 1             |
| 7           | 112202BP517            | Hose L (mm) = 1380  | 2             |
| 8           | 112202BP520            | Hose L (mm) = 1750  | 1             |
| 9           | 112202BP521            | Hose L (mm) = 2000  | 1             |
| 10          | 112202BP522            | Hose L (mm) = 1480  | 1             |
| 11          | 112202BP523            | Hose L (mm) = 750   | 1             |
| 12          | 112202BP523            | Hose L (mm) = 750   | 1             |
|             |                        |                     |               |
|             |                        |                     |               |
|             |                        |                     |               |

### Hydraulic hoses HS/WR



| <b>Pos.</b> | <b>Sieger part no.</b> | <b>Description</b> | <b>Quant.</b> |
|-------------|------------------------|--------------------|---------------|
| 10          | 112202BP530            | Hose L (mm) = 1170 | 1             |
| 11          | 112202BP531            | Hose L (mm) = 1620 | 1             |

**Hydraulic diagram**

**Electrical connections (WR option)**

| <b>Pos.</b> | <b>Colour</b> |
|-------------|---------------|
| C1          | White         |
| C2          | Black         |
| C3          | Yellow        |
| C4          | Pink          |
| C5          | Purple        |
| C6          | Brown         |
| C7          | Blue          |
| C8          | Orange        |
| C9          | Grey          |
| C10         | Green         |
| C11         | Red           |

| <b>Pos.</b>  | <b>Colour</b> |
|--------------|---------------|
| X1.1 - X1.9  | White         |
| X2.1 - X2.10 | Black         |
|              |               |
|              |               |
|              |               |
|              |               |
|              |               |
|              |               |
|              |               |
|              |               |